Science and Clinical Work Sinergy

Abstracts of the 4th International Congress of the Department of Endodontics and Restorative Dentistry, School of Dental Medicine, University of Zagreb in coorganizing the Croatian Society for Minimal Interventional Dental Medicine CMA

October 23-24, 2020, Zagreb, Croatia

Sinergija znanosti i kliničkog rada

Sažetci IV. kongresa s međunarodnim sudjelovanjem Zavoda za endodonciju i restaurativnu stomatologiju Stomatološkog fakulteta Sveučilišta u Zagrebu u suorganizaciji Hrvatskog društva za minimalno intervencijsku dentalnu medicinu HLZ-a

23. i 24. listopada 2020., Zagreb, Hrvatska

WEAR RESISTANCE OF NEW GLASS-HYBRID RESTORATIVE MATERIAL WITH OR WITHOUT COATING IN CONDITIONS OF DIFFERENT pH

Sandra Brkanović[1], Ana Ivanišević[1], Dražen Mezdić[2], Ivana Miletić[1], Silvana Jukić Krmek[1]
[1]*Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Zagreb, Croatia*
[2]*Department of Materials, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Croatia*

Aim: The purpose of the study was to determine the wear rate of the new glass-hybrid material Equia Forte HT Fil with resin coating Equia Forte Coat or without coating and compare it with Fuji IX GP high viscosity SIC, in conditions with acid load or at neutral pH values.
Materials and methods: 72 samples of Equia Forte HT Fil and Fuji IX GP were made using a silicone mold. A portion of the samples (n = 12) were coated with Equia Forte Coat. The samples were divided into three subgroups: (1) stored in artificial saliva; (2) stored in artificial saliva and exposed to low pH; (3) stored in distilled water and exposed to low pH. Wear resistance was determined by measuring the difference in mass before and after brushing in a unique device, made at the Faculty of Mechanical Engineering and Naval Architecture, Zagreb. Mass measurements were performed with an NBL 254i analytical balance. Statistical analysis was performed by the method of one-way and two-way analysis of variance, the program SPSS v. 20, IBM.
Results: Fuji IX GP had significantly higher wear than Equia Forte HT Fil with or without resin coating (p = 0.000). The difference in wear resistance between Equia Forte HT Fil without Coat and Equia Forte HT Fil with Coat was not statistically significant (p <0.803). Differences in wear between samples stored in saliva and those stored in distilled water were not significant (p = 0.588). Periodic exposure to additional acid load significantly affected the wear resistance of all materials and the difference between the group not exposed to acid and the group where samples were exposed to acid is significant (p = 0.000).
Conclusion: The new glass-hybrid material Equia Forte HT Fil is more wear-resistant than the high-viscosity SIC Fuji IX GP, in all storage conditions and acid load. Applying Equia Forte Coat increases wear resistance, but not significantly. The medium in which the samples were stored did not significantly affect wear, however, exposure of the material to a low pH solution significantly increases wear.
Keywords: glass ionomer, wear resistance, acid load, artificial saliva

OTPORNOST NA TROŠENJE NOVOG STAKLO-HIBRIDNOG RESTAURATIVNOG MATERIJALA S PREMAZOM ILI BEZ NJEGA U UVJETIMA RAZLIČITOG pH

Sandra Brkanović[1], Ana Ivanišević[1], Dražen Mezdić[2], Ivana Miletić[1], Silvana Jukić Krmek[1]
[1]*Zavod za endodonciju i restauritivnu stomatologiju, Stomatološki fakultet Sveučilišta u Zagrebu, Hrvatska*
[2]*Zavod za materijale, Fakultet strojarstva i brodogradnje Sveučilišta u Zagrebu, Hrvatska*

Cilj: Svrha istraživanja bila je utvrditi stupanj trošenja novog staklo-hibridnog materijala Equia Forte HT Fil sa smolastim premazom Equia Forte Coat ili bez premaza te ga usporediti s Fuji IX GP visoko viskoznim SIC-om, u uvjetima s kiselinskim opterećenjem ili pri neutralnim pH vrijednostima.
Materijali i metode: Pomoću silikonskog kalupa izrađena su 72 uzorka od Equia Forte HT Fil i Fuji IX GP. Dio uzoraka (n=12) premazan je Equia Forte Coat-om. Uzorci su podijeljeni u tri podskupine: (1) pohranjeni u umjetnoj slini; (2) pohranjeni u umjetnoj slini i izlagani niskom pH; (3) pohranjeni u destiliranoj vodi i izlagani niskom pH. Otpornost na trošenje određena je mjerenjem razlike mase prije i nakon četkanja u jedinstvenom uređaju, izrađenom na Fakultetu Strojarstva i brodogradnje, Zagreb. Mjerenje mase provedeno je analitičkom vagom NBL 254i. Statistička analiza provedena je metodom jednosmjerne i dvosmjerne analize varijance, programom SPSS v. 20, IBM.
Rezultati: Trošenje Fuji IX GP bilo je značajno veće nego kod Equia Forte HT Fil sa smolastim premazom ili bez njega (p=0,000). Razlika u trošenju je između Equia Forte HT Fil bez Coata i Equia Forte HT Fil s Coat-om nije bila statistički značajna (p<0,803). Razlike u trošenju između uzoraka čuvanih u slini i onih čuvanih u destiliranoj vodi nisu bile značajne (p=0,588). Periodičko izlaganje dodatnom kiselinskom opterećenju značajno utjecalo na otpornost na trošenje svih materijala te je razlika između skupine koja nije izlagana kiselini i skupine gdje su uzorci izlagani kiselini značajna (p=0,000).
Zaključak: Novi staklo-hibridni materijal Equia Forte HT Fil otporniji je na trošenje od visokoviskoznog SIC-a Fuji IX GP, u svim uvjetima čuvanja i kiselinskog opterećenja. Nanošenje Equia Forte Coat-a povećava otpornost na trošenje, ali ne značajno. Medij u kojem su uzorci čuvani ne utječe značajno na trošenje, međutim izlaganje materijala otopini niske pH vrijednosti značajno povećava trošenje.
Ključne riječi: stakleno ionomerni cement, otpornost na trošenje, kiselinsko opterećenje, umjetna slina.

This study is funded by Croatian Science Foundation, „Investigation and development of new micro and nanostructure bioactive materials in dental medicine" BIODENTMED No. IP-2018-01-1719.

Istraživanje je financirano HRZZ projektom „Istraživanje i razvoj novih mikro i nanostrukturnih bioaktivnih materijala u dentalnoj medicini"; BIODENTMED br. IP-2018-01-1719.

THE CHANGE IN THE PSYCHOSOCIAL IMPACT OF DENTAL ESTHETICS AND TOOTH COLOR IN PATIENT AFTER USAGE OF AT-HOME WHITENING AGENTS

Ivona Ivkošić[1], Sara Popović[2], Lidia Gavić[2,3], Nada Galić[4], Antonija Tadin[2,3]
[1]*Department of Dental Medicine, University Hospital Centre Zagreb, Croatia*
[2]*Department of Restorative Dental Medicine and Endodontics, Study of Dental Medicine, School of Medicine, University of Split, Croatia*
[3]*Department of Maxillofacial Surgery, University Hospital Centre Split, Croatia*
[4]*Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Zagreb, Croatia*

Aim: The aim was to evaluate the impact of at-home whitening procedures on participants' tooth color and psychological and psychosocial factors.
Materials and Methods: Fifty-six participants were selected and divided into three groups, according to used tooth whitening agent: toothpaste, pen and their combination. Tooth color change (ΔE), participants' satisfaction with appearance (visual analogue scale) and the Psychosocial Impact of Dental Aesthetic Questionnaire (PIDAQ) were assessed baseline, seven and 14 days from the beginning of the use of whitening agents. Likewise, the participant's satisfaction with characteristics of whitening treatment was evaluated on a 5-point Likert-type scale at the end of the treatment.
Results: After seven days of usage, the color change (ΔE) values were significantly higher for whitening pen and combination of whitening pen – toothpaste than the dentifrice group (4.22 ± 2.40 and 4.12 ± 2.73 vs 2.58 ± 2.43, P = 0.013). There was no difference in patients' satisfaction with overall treatment, final tooth color and comfort during treatment between used agents. Also, there was no difference in values of the PIDAQ questionnaire between tested whitening agents at different time points.
Conclusion: Although all tested agents showed a whitening effect, whitening pen presented higher color changes than the whitening toothpaste. Tested at-home whitening procedures did not have a positive impact on participants' psychology and aesthetic perception. Further research is required for understanding the comprehensiveness of whitening efficiency of over-the-counter whitening agents.
Keywords: tooth whitening, tooth color, PIDAQ, whitening toothpaste, whitening pen, patient satisfaction

PROMJENE U PSIHOSOCIJALNOM UTJECAJU NA DENTALNU ESTETIKU I BOJU ZUBA U ISPITANIKA NAKON KORIŠTENJA SREDSTAVA ZA IZBJELJIVANJE KOD KUĆE

Ivona Ivkošić[1], Sara Popović[2], Lidia Gavić[2,3], Nada Galić[4], Antonija Tadin[2,3]
[1]*Klinika za stomatologiju, Klinički bolnički centar Zagreb, Zagreb, Hrvatska*
[2]*Katedra za restaurativnu dentalnu medicinu i endodonciju, Studij za dentalnu medicinu, Medicinski fakultet, Sveučilište u Splitu, Split, Hrvatska*
[3]*Odjel za maksilofacijalnu kirurgiju, Klinički bolnički centar Split, Split, Hrvatska*
[4]*Zavod za endodonciju i restaurativnu stomatologiju Stomatološkog fakulteta Sveučilišta u Zagrebu, Zagreb, Hrvatska*

Cilj: Cilj je bio procijeniti učinak sredstava za izbjeljivanje koji se koriste kod kuće na boju zuba ispitanika te psihološke i psihosocijalne čimbenike.
Materijali i metode: Pedeset šest ispitanika je izabrano i podijeljeno u tri skupine ovisno o korištenom sredstvu za izbjeljivanje: zubna pasta, olovka ili njihova kombinacija. Promjena boje zuba (ΔE), zadovoljstvo ispitanika izgledom (vizualno analogna skala), upitnik psihosocijalnog utjecaja dentalne estetike (PIDAQ) procijenjeni su prije korištenja, te sedam i 14 dana od početka korištenja ispitivanih sredstava za izbjeljivanje. Također, zadovoljstvo ispitanika značajkama tretmana izbjeljivanja procijenjeno je na Likertovoj skali na kraju tretmana.
Rezultati: Nakon sedam dana korištenja, promjena boje zuba (ΔE) bila je značajno veća kod ispitanika koji su koristili olovku i kombinaciju olovke i zubne paste nego onih koji su koristili samo zubnu pastu (4,22 ± 2,40 i 4,12 ± 2,73 naspram 2,58 ± 2,43, P = 0,013). Nije bilo razlike u zadovoljstvu ispitanika ukupnim tretmanom, završnom bojom zuba i udobnošću tretmanom među ispitivanim sredstvima. Isto tako nije bilo razlike u vrijednostima PIDAQ upitnika među ispitivanim sredstvima u različitim vremenima ispitivanja.
Zaključak: Iako su sva ispitivana sredstva pokazala učinak izbjeljivanja, olovka je pokazala veću promjenu u boji zuba u odnosu na zubnu pastu. Ispitivana sredstva za izbjeljivanje nisu imala pozitivan učinak na psihološku i estetsku percepciju ispitanika. Potrebna su daljnja istraživanja kako bi se razumjela sveobuhvatnost učinkovitosti izbjeljivanja različitih komercijalnih sredstava koja se koriste u tu svrhu.
Ključne riječi: izbjeljivanje zubi, boja zuba, PIDAQ, zubna pasta za izbjeljivanje, olovka za izbjeljivanje, zadovoljstvo pacijenta

RAPID (3S) POLYMERIZATION OF A NEW GENERATION BULK-FILL COMPOSITE MATERIALS

Nikolina Klarić[1], Ana Crnadak[2], Matea Macan[1], Iva Plazonić[1], Anđelina Šekelja[1], Matej Par[3], Danijela Marović[3]
[1]*Student od School of Dental Medicine, University of Zagreb*
[2] *DMD*
[3] *Department of Endodontics and Restorative Dentistry, School of Dental Medicine, University of Zagreb*

Aim: This study examined the polymerization of a new generation of bulk-fill composites on a very high-intensity curing unit during a 3-second interval. The influence of different polymerization programs on the degree of conversion of composite materials was analyzed.
Materials and methods: Four bulk-fill composite materials were tested, two of which were high-viscosity materials (Tetric PowerFill, Ivoclar Vivadent and Filtek One Bulk Fill Restorative, 3M) while the other two were low-viscosity materials (Tetric PowerFlow, Ivoclar Vivadent and SDR Plus Bulk Fill Flowable, Dentsply). Specimens with the thickness of 2 or 4 mm (n=5) were polymerized with a standard intensity of 950 mW/cm^2 for 20 s or with a light intensity of 2652 mW/cm^2 (Bluephase PowerCure, Ivoclar Vivadent) for 3 s. The specimens were stored in a saline solution for 29 days at the temperature of 37 ^{0}C and were then left to dry in a desiccator for three days. The measurement of the degree of conversion from double to single bonds was performed on a surface, 2 mm and 4 mm using FT-Raman spectrometer (Spectrum GC, Perkin Elmer). A one-way ANOVA and a Tukey post-hoc test with a significance level of 0,05 were used for statistical data processing.
Results: A high degree of conversion was shown by all tested materials polymerized by the standard polymerization protocol, as well as 3 s polymerization. The ratio of the degree of conversion between the bottom of the specimen on 4 mm and surface of the specimen on 0 mm was higher than 0,8 for all tested materials. There was no significant difference in the degree of conversion between the different polymerization protocols for the Tetric PowerFIll and SDR Plus Bulk Fill Flowable, while the Tetric PowerFlow and Filtek One Bulk Fill Restorative were statistically better polymerized with standard polymerization protocol. In the group polymerized for 3 s, the measurements acquired at a depth of 2 – 4 mm were less polymerized then at 0 – 2 mm.
Conclusion: The efficiency of 3-s polymerization is highly material specific. 3-s polymerization with a very high light intensity is sufficient to polymerize a Tetric PowerFill material, which was designed for such a polymerization method and could be suitable for

BRZA (3 S) POLIMERIZACIJA NOVE GENERACIJE BULK-FILL KOMPOZITNIH MATERIJALA

Nikolina Klarić[1], Ana Crnadak[2], Matea Macan[1], Iva Plazonić[1], Anđelina Šekelja[1], Matej Par[3], Danijela Marović[3]
[1]*Studentica Stomatološkog fakulteta, Sveučilište u Zagrebu*
[2] *dr. med. dent.*
[3] *Zavod za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet, Sveučilište u Zagrebu*

Cilj: Ovim istraživanjem ispitala se polimerizacija nove generacije *bulk-fill* kompozita polimerizacijskim uređajima vrlo visokog intenziteta tijekom 3 sekunde. Analizirao se utjecaj različitih polimerizacijskih programa na stupanj konverzije kompozitnih materijala.
Materijali i metode: Ispitana su četiri *bulk-fill* kompozitna materijala, od toga dva visoko-viskozna (Tetric PowerFill, Ivoclar Vivadent i Filtek One Bulk Fill Restorative, 3M) i dva nisko-viskozna (Tetric PowerFlow, Ivoclar Vivadent i SDR Plus Bulk Fill Flowable, Dentsply). Uzorci debljine 2 ili 4 mm (n=5) su polimerizirani 20 s standardnim programom intenziteta 950 mW/cm^2 ili tijekom 3 s svjetlosnim intenzitetom od 2652 mW/cm^2 (Bluephase PowerCure, Ivoclar Vivadent). Uzorci su 29 dana skladišteni u fiziološkoj otopini, na 37 ^{o}C te potom sušeni u eksikatoru tri dana. Mjerenje stupnja konverzije dvostrukih u jednostruke veze provedeno je na površini, 2 mm i 4 mm FT-Raman spektrometrom (Spectrum GX, PerkinElmer). Za statističku obradu podataka rabljena je jednosmjerna ANOVA i Tukey post-hoc test s razinom značajnosti od 0,05.
Rezultati: Visok stupanj konverzije pokazali su svi ispitani materijali polimerizirani standardnim protokolom osvjetljavanja, kao i 3 s polimerizacijom. Omjer stupnja konverzije dna uzorka na 4 mm i površine uzorka na 0 mm bio je viši od 0,8 kod svih ispitanih materijala. Nije bilo razlike u stupnju konverzije između različitih polimerizacijskih protokola za Tetric PowerFill i SDR Plus Bulk Fill Flowable, dok su Tetric PowerFlow i Filtek One Bulk Fill Restorative bili statistički bolje polimerizirani standardnim protokolom polimerizacije. U skupini uzoraka polimeriziranih 3 s, uzorci na dubini od 2 - 4 mm bili su slabije polimerizirani od uzoraka na dubinama od 0 - 2 mm.
Zaključak: Uspješnost 3 s polimerizacije je visoko materijal-specifična. 3 s polimerizacija lampom vrlo visokog intenziteta svjetlosti dovoljna je za polimerizaciju materijala Tetric PowerFill koji je dizajniran za takav način polimerizacije te može biti prikladna i za druge materijale, poput SDR Plus Bulk Fill Flowable; no za materijal Tetric PowerFlow standardna polimerizacija daje više rezultate stupnja konverzije.
Ključne riječi: polimerizacija kompozita, bulk fill kompoziti, stupanj konverzije

other materials, such as SDR Plus Bulk Fill Flowable; however, in the case of Tetric PowerFlow material, standard polymerization gives higher results for the degree of conversion.
Keywords: Composite Polymerization, Bulk Fill Composite, Degree of Conversion
This research was supported by CSF project IP-2019-04-6183, "Biomimetic intelligent composite materials".

IMPLANT LOSS CAUSED BY VERTICAL TOOTH FRACTURE – CASE REPORT

Jurica Matijević[1], Ana Malčić Ivanišević[1], Zoran Karlović[1], Ivan Zajc[2], Paris Simeon[1]
[1]*Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Zagreb, Croatia*
[2]*Department of Oral Surgery, School of Dental Medicine, University of Zagreb, Croatia*

Case report: Vertical tooth fracture still represents a terminal diagnosis in an endodontic therapy. Due to bacterial contamination and the impossibility of repair, it inevitably leads to periodontal deterioration with consequent bone loss, the extent of which depends on the duration of defect and virulence of the pathogens. The osseointegrated implant forms a stable whole with bone that can be compromised mainly by the weakest point and that is the gingival junction of the implant, gingiva, abutment and bone. However, continuous intraosseous spread of inflammation with endodontically problematic tooth as a source is also possible. In our case, the implant at position 16 was lost due to a vertical fracture of tooth 15. After pre-prosthetic preparation of the upper jaw, which included endodontic treatment of tooth 15 (ProTaper Next, X3, MM Seal, cold lateral condensation) and intracanal post placement (3M Relyx fiber post), a temporary CAD / CAM bridge was made. Implantation was performed at positions 16 and 25 (MIS C1). After a period of osseointegration, screw-retained crowns were placed. Within 2 years, the patient was admitted with acute pain in the area of implant 16. The implant was removed and the osteotomy site was thoroughly debrided. After the closure of the bone defect, acute symptomathology appeared, which indicated pulpitis of tooth 14. However, tooth 14 had positive thermal and cavity preparation tests. Tooth 15 was not sensitive on palpation nor there was a periodontal defect. Based on radiographic analysis (CBCT), tooth 15 was removed as the causative agent due to vertical fracture. After the healing period, implants were placed at positions 16 and 15 (MIS V3) as well as the definitive bridge.
Keywords: vertical root fracture, implantoprosthodontic therapy, endodontic treatment

GUBITAK IMPLANTATA USLIJED VERTIKALNE FRAKTURE ZUBA – PRIKAZ SLUČAJA

Jurica Matijević[1], Ana Malčić Ivanišević[1], Zoran Karlović[1], Ivan Zajc[2], Paris Simeon[1]
[1]*Zavod za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet, Sveučilište u Zagrebu*
[2]*Zavod za oralnu kirurgiju, Stomatološki fakultet, Sveučilište u Zagrebu*

Prikaz slučaja: Vertikalna fraktura zuba još uvijek predstavlja terminalni problem u prognozi zuba. Uslijed bakterijske kontaminacije i nemogućnosti reparature neminovno dovodi do propadanja parodonta uz posljedični gubitak kosti, čiji opseg ovisi o vremenu i virulenciji uzročnika. Oseointegrirani implantat čini stabilnu cjelinu s kosti koja može biti kompromitirana uglavnom sa strane najslabije točke a to je gingiva i spojište implantata, gingive, nadogradnje i kosti. Međutim, moguće je i kontinuirano intraosealno širenje upale s endodontski problematičnim zubom kao izvorom. U našem slučaju radi se o gubitku implantata na položaju 16 uslijed vertikalne frakture zuba 15. Nakon predprotetske pripreme gornje čeljusti koja je uključivala i endodontsko liječenje zuba 15 (ProTaper Next, X3, MM Seal, hladna lateralna kondenzacija) i opskrbe intrakanalnim kolčićem (3M Relyx fiiber post), postavljen je privremeni CAD/CAM most. Učinjena je implantacija na položajima 16 i 25 (MIS C1). Nakon razdoblja oseoinetgracije postavljene su krune retinirane vijkom. Kroz 2 godine pacijent je primljen s akutnim bolovima u području implantata 16. Implantat je uklonjen a mjesto osteotomije temeljito kohleirano. Nakon zatvaranja koštanog defekta javili su se akutni bolovi koji su upućivali na pulpitis zuba 14. Test brušenjem kroz mosnu konstrukciju bio je pozitivan. Zub 15 nije bio osjetljiv palpatorno niti se sondirao parodontni defekt. Temeljem radiografske analize (CBCT) uklonjen je zub 15 kao uzročnik uslijed vertikalne frakture. Nakon razdoblja cijeljenja postavljeni su implantati na položaje 16 i 15 (MIS V3) kao i definitivni most.
Ključne riječi: vertikalna fraktura korijena, implantoprotetska rehabilitacija, endodontsko liječenje

ATTITUDES AND KNOWLEDGE OF DENTAL MEDICINE STUDENTS ABOUT ONCOLOGY PATIENTS DENTAL CARE

Iva Pedić[1], Danijela Kalibović Govorko[2], Ivan Galić[3],Valentina Rajić Brzović[4], Alma Konjhodžić[5], Aleš Fidler[6], Ivana Brekalo Pršo[7], Ivana Medvedec Mikić[8]
[1] *Private dental practice*
[2] *Department of Orthodontics, Study of Dental Medicine, School of Medicine, University of Split, University Hospital Centre Split, Croatia*
[3] *Department of Oral Surgery, Study of Dental Medicine, School of Medicine, University of Split, University Hospital Centre Split ,Croatia*
[4]*Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Zagreb, Croatia*
[5]*Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Sarajevo, BiH*
[6]*Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Rijeka, Croatia*
[7]*Department of Dental Diseases and Dental morphology, Dental Clinic, University Clinical Centre Ljubljana, Slovenia*
[8]*Department of Restorative Dental Medicine and Endodontics, Study of Dental Medicine, School of Medicine, University of Split, Croatia*

Aim: This research aimed to determine the attitudes and knowledge of fourth, fifth and sixth- year dental students from Split, Rijeka, Zagreb, Ljubljana and Sarajevo about oncology patients dental care.
Materials and methods: The research was conducted using an anonymous survey questionnaire composed of 36 specific questions. A total of 140 respondents participated, the most from Split (n = 48) and the least from Ljubljana (n = 8).
Sixt year students were the most numerous (45.7%).
Results: Of all respondents, most students from Zagreb (34%) and the least from Sarajevo (3.3%) answered that they have enough knowledge to provide dental care to oncology patients. All respondents from all five faculties answered affirmative to the question, „Do you want to learn more about dental care of oncology patients?"
Students of all of the above faculties presented inadequate knowledge regarding the head and neck radiation effects on oral structures, especially osteoradionecrosis. Most students showed poor knowledge regarding the implementation of dental procedures during chemotherapy, especially related to the values of blood counts and the time of performing endodontic procedures and extractions. There was no statistically significant difference in knowledge level between the mentioned faculties using the Kruskal-Wallis ANOVA test. The general regression model confirmed that the variable, home faculty, has only a statis-

Istraživanje je financirano HRZZ projektom IP-2019-04-6183, „Biomimetički inteligentni kompozitni materijali".

STAVOVI I ZNANJA STUDENATA DENTALNE MEDICINE O DENTALNOJ SKRBI ONKOLOŠKIH PACIJENATA

Iva Pedić[1], Danijela Kalibović Govorko[2], Ivan Galić[3],Valentina Rajić Brzović[4], Alma Konjhodžić[5], Aleš Fidler[6], Ivana Brekalo Pršo[7], Ivana Medvedec Mikić[8]
[1] *Privatna ordinacija dentalne medicine*
[2] *Katedra za ortodonciju, Medicinski fakultet Sveučilišta u Splitu; KBC Split*
[3] *Katedra za oralnu kirurgiju, Medicinski fakultet Sveučilišta u Splitu; KBC Split*
[4]*Zavod za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet Sveučilište u Zagrebu, KBC Zagreb*
[5]*Zavod za restaurativnu stomatologiju i endodonciju, Stomatološki fakultet, Sveučilište u Sarajevu*
[6]*Katedra za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet, Sveučilište u Rijeci*
[7]*Katedra za zobne bolezni in normalno morfologijo zobneg organa, Stomatološka klinika, UKC Ljubljana*
[8]*Katedra za restaurativnu dentalnu medicinu i endodonciju, Medicinski fakultet Sveučilišta u Splitu; KBC Split*

Cilj: Cilj istraživanja bio je utvrditi stavove i znanja studenata 4., 5. i 6. godine dentalne medicine iz Splita, Rijeke, Zagreba, Ljubljane i Sarajeva o dentalnoj skrbi onkoloških pacijenata.
Materijali i metode: Istraživanje je provedeno pomoću anonimnog anketnog upitnika sastavljenog od 36 specifičnih pitanja. Sudjelovalo je ukupno 140 ispitanika, najviše iz Splita (n=48) i najmanje iz Ljubljane (n=8) i to najviše studenata šeste godine studija (45,7%).
Rezultati: Od svih ispitanika najviše (34%) studenata iz Zagreba i najmanje iz Sarajeva (3,3%) je odgovorilo da imaju dovoljno znanja za pružanje pomoći onkološkim pacijentima. Svi ispitanici sa svih pet fakulteta su odgovorili potvrdno na pitanje "Želite li naučiti više o dentalnoj skrbi onkoloških pacijenata? "
Lošije znanje pokazali su studenti svih ispitivanih fakulteta po pitanju učinka zračenja glave i vrata na oralne strukture osobito vezano uz osteoradionekrozu. Većina studenata je pokazala loše znanje po pitanju provođenja dentalnih zahvata za vrijeme kemoterapije posebno vezano uz vrijednosti krvne slike i vremenu izvođenja endodontskih zahvata i ekstrakcija. Iako su uočene određene razlike u stupnju znanja između fakulteta, iste nisu bile dovoljne da bi se pokazale i statistički značajnim primjenom Kruskal-Wallis ANOVA testa. Primjenom generalnog regresijskog modela potvrđeno je da fakultet na kojem studiraju ima jedino statistički značajan utjecaj na tvrdnju „Nije dokazana veća incidencija karijesa kod onkoloških pacijenata"(p=0,037).

tically significant effect on the statement, „No higher incidence of caries in cancer patients has been proven“ (p = 0.037).
Conclusion: This research presents that final-year dental students from all mentioned faculties lack knowledge about providing dental care to oncology patients. There are a need and desire of students for additional education on this topic.
Keywords: Dental Care, Oncology patients, Dental Education

Zaključak: Rezultati ovog istraživanja pokazuju da studenti završnih godina dentalne medicine iz svih pet gradova nisu dovoljno educirani o pružanju dentalne skrbi onkološkim pacijentima. Postoji potreba i želja studenata o dodatnoj edukaciji na navedenu temu.
Ključne riječi: dentalna skrb, onkološki pacijent, student dentalne medicine

THE EFFECTIVENESS OF AN IONIC TOOTHBRUSH IN MAINTAINING ORAL HYGIENE

Jasna Peručić[1], Zoran Karlović[2], Paris Simeon[2], Danijela Jurić-Kaćunić[3], Jurica Matijević[2]
[1]6th year student, School of Dental Medicine, University of Zagreb
[2]Department of Endodontics and Restorative Dental Medicine, School of Dental Medicine, University of Zagreb, Croatia
[3]Private dental practice, Gaggenau, Germany

Aim: The aim of this study was to examine the effectiveness of an ionic brush on the amount of plaque and gingival bleeding. There have been only a few studies that involve the ionic brush so far and they have revealed different results.
Materials and methods: In this study participated 13 subjects. The majority of them were women, while men were in the minority. Respondents had to meet certain criteria to be able to participate. All respondents were given an ionic brush, and they maintained oral hygiene in the same way as before. One week before and one month after handing over the toothbrush, the plaque index and the papilla bleeding index were examined. A plaque relevator and a modification of the Green-Vermillion index was used to assess the plaque index. The papilla bleeding index was measured in a standard way with a reading interval of 30 seconds.
Results: The results showed a statistically significant difference between measurements at the level of the overall sample, regardless of gender, between the 1st and 3rd measurements for papilla bleeding index in upper and lower anterior sextant ($p<0.05$), and for plaque index in upper right sextant buccally ($p<0.05$).
Conclusion: Based on the results obtained, it can be concluded that the ionic brush, along with mechanical cleaning, has an additional effect that helps maintain oral hygiene. By changing the charge of the tooth, the plaque adheres less to it. Although the results showed improvements in both measured components, further research is for proven clinical effectiveness.
Keywords: ionic toothbrush, oral health, plaque index, papilla bleeding index
This study is funded by Croatian Science Foundation, „Investigation and development of new micro and nanostructure bioactive materials in dental medicine” BIODENTMED No. IP-2018-01-1719.

UČINKOVITOST IONSKE ČETKICE ZA ZUBE U ODRŽAVANJU ORALNE HIGIJENE

Jasna Peručić[1], Zoran Karlović[2], Paris Simeon[2], Danijela Jurić-Kaćunić[3], Jurica Matijević[2]
[1]Studentica 6. godine, Stomatološki fakultet Sveučilišta u Zagrebu
[2]Zavod za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet, Sveučilište u Zagrebu
[3]Privatna ordinacija dentalne medicine, Gaggenau, Njemačka

Cilj: Svrha ovog istraživanja bila je ispitati djelovanje ionske četkice na količinu plaka i krvarenje gingive. Studije koje uključuju ionsku četkicu malobrojna su i različitih rezultata.
Materijali i metode: U istraživanju je sudjelovalo 13 ispitanika. Većinu ispitanika čine su žene, dok je muškaraca bilo u manjini. Ispitanici su morali zadovoljiti određene kriterije da bi mogli sudjelovati. Svim ispitanicima dana je ionska četkica, te su oralnu higijenu održavali na isti način kao i ranije. Prije predaje same četkice, tjedan dana, i mjesec dana nakon, mjerio se plak indeks i indeks krvareće papile. Za mjerenje plak indeksa koristio se plak relevator, te modifikacija Green-Vermillion indeksa. Indeks krvareće papile mjerio se na standardni način s odmakom očitavanja rezultata od 30 sekundi.
Rezultati: Rezultati su pokazali statistički značajnu razliku na razini cjelokupnog uzorka, neovisno o spolu, između 1. i 3. mjerenja za indeks krvareće papile, u gornjem i donjem prednjem sekstantu ($p<0.05$), te za plak indeks u gornjem desnom sekstantu bukalno ($p<0.05$).
Zaključak: Temeljem dobivenih rezultata može se zaključiti da ionska četkica uz mehaničko čišćenje ima dodatno djelovanje koje pomaže u održavanju oralne higijene. Promjenom naboja zuba plak manje prijanja na isti. Iako su rezultati pokazali poboljšanja u obje mjerene komponente potrebna su daljnja istraživanja za dokazanu kliničku učinkovitost.
Ključne riječi: ionska četkica za zube, oralno zdravlje, plak indeks, indeks krvareće papile
Istraživanje je financirano HRZZ projektom „Istraživanje i razvoj novih mikro i nanostrukturnih bioaktivnih materijala u dentalnoj medicini“ ; BIODENTMED br. IP-2018-01-1719.

EVALUATION OF MECHANICAL PROPERTIES OF BIOACTIVE RESTORATIVE MATERIALS

Karlo Posavec[1], Matej Par[2], Danijela Marović[2]
[1] Student at School of Dental Medicine, University of Zagreb
[2] Department of Endodontics and Restorative Dentistry, School of Dental Medicine, University of Zagreb

Aim: Adequate mechanical properties play an important role in the choice of restorative materials. Tougher materials show better resistance to deformation and fracture. The aim of this study was to evaluate flexural strength and modulus of a new type of bioactive restorative material from the alkasite group, and to compare its mechanical properties with those of selected materials representative for other groups of restorative materials.
Materials and methods: Four materials were examined: an alkasite (Cention, Ivoclar Vivadent), a glass ionomer (Fuji IX, GC), a giomer (Beautifil II, Shofu), and a conventional composite as control (Tetric EvoCeram, Ivoclar Vivadent). Bar-shaped specimens of dimensions 2 × 2 × 16 mm were light-cured for 20 s using a LED curing unit with a continuous intensity of 950 mW/cm^2 (Bluephase G2, Ivoclar Vivadent). Fuji IX capsules were mechanically mixed for 10 s, cast into molds, and left to chemically set for 10 min under dry conditions. After setting, the specimens were immersed in saline solution at 37 °C over 24 h, and subsequently subjected to the three-point bending test according to ISO 4049 using a universal testing machine (Ultratester, Ultradent Products Inc). Statistical analysis was performed using one-way ANOVA with Tukey post-hoc test, at an overall level of significance of 0.05.
Results: Fuji IX showed statistically lowest mechanical properties with flexural strength of 15.4 (±4.8) MPa and elastic modulus of 3.5 (±1.3) GPa. Cention showed significantly higher flexural strength (176.5 (±24.4) MPa) and elastic modulus (6.5 (±0.9) GPa) compared to Fuji IX. No statistically significant difference was identified between the giomer Beautifil II (flexural strength of 208.9 (±28.7) MPa, elastic modulus of 10.2 (±1.2) GPa) and the composite Tetric EvoCeram (flexural strength of 222.6 (±34.6) MPa, elastic modulus 9.3 (±1.4) GPa).
Conclusion: Within the limitations of the present study, the bioactive restorative material from the alkasite group showed better mechanical properties compared to the investigated glass ionomer, while showing an inferior performance to the investigated composite material and the giomer.
Keywords: Bioactive Materials, Restorative Dental Medicine, Mechanical properties
This research was supported by CSF project IP-2019-04-6183, “Biomimetic intelligent composite materials”.

EVALUACIJA MEHANIČKIH SVOJSTAVA BIOAKTIVNIH RESTAURATIVNIH MATERIJALA

Karlo Posavec[1], Matej Par[2], Danijela Marović[2]
[1]Student Stomatološkog fakulteta, Sveučilište u Zagrebu
[2]Zavod za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet, Sveučilište u Zagrebu

Cilj: Povoljna mehanička svojstva od velikog su značaja prilikom odabira restaurativnog materijala. Čvršći materijali imaju veću mogućnost pružanja otpora deformaciji i frakturi. Svrha ovog istraživanja je evaluacija savojne čvrstoća i modula savijanja nove vrste bioaktivnih restaurativnih materijala iz skupine alkasita te usporedba s mehaničkim svojstvima predstavnika drugih restaurativnih materijala.
Materijali i metode: Ispitana su četiri materijala: alkasit Cention N (Ivoclar Vivadent), stakleni ionomer Fuji IX (GC), giomer Beautifil II (Shofu) i konvencionalni kompozit kao kontrolni materijal Tetric EvoCeram (Ivoclar Vivadent). Uzorci dimenzija 2 x 2 x 16 mm (n = 15) su polimerizirani 20 s sa LED lampom kontinuiranog intenziteta 950 mW/cm2 (Bluephase G2, Ivoclar Vivadent), dok je Fuji IX u kapsuliranom obliku trituriran 10 s te se dopustilo kemijsko stvrdnjavanje 10 min na suhom prije izlaganja vodenom mediju. Uzorci su nakon polimerizacije skladišteni u fiziološkoj otopini na 37 °C tijekom 24 h te potom podvrgnuti testu savijanja u tri točke prema ISO 4049 na univerzalnom uređaju za testiranje (Ultratester, Ultradent Products Inc). Za statističku obradu podataka rabljena je jednosmjerna ANOVA i Tukey post-hoc test s razinom značajnosti od 0,05.
Rezultati: Mehanička svojstva Fuji IX pokazala su se statistički najslabijima, sa savojnom čvrstoćom 15,4 (±4,8) MPa i modulom elastičnosti 3,5 (±1,3) GPa. Cention N pokazao je značajno višu savojnu čvrstoću (176,5 (±24,4) MPa) i modul elastičnosti (6,5 (±0,9) GPa) u odnosu na Fuji IX. Nije bilo statistički značajne razlike između giomera Beautifil II (savojna čvrstoća 208,9 (±28,7) MPa, modul elastičnosti 10,2 (±1,2) GPa) i kompozita Tetric EvoCeram (savojna čvrstoća 222,6 (±34,6) MPa, modul elastičnosti 9,3 (±1,4) GPa).
Zaključak: Unutar ograničenja ovog istraživanja može se zaključiti kako bioaktivni remineralizacijski materijal iz skupine alkasita posjeduje bolja mehanička svojstva od testiranog staklenog ionomera, no inferiornija od ispitivanog kompozita i giomera.
Ključne riječi: bioaktivni materijali, restaurativna dentalna medicina, mehanička svojstva
Istraživanje je financirano HRZZ projektom IP-2019-04-6183, „Biomimetički inteligentni kompozitni materijali“.

DIGITAL ASSESSMENT OF THREE COLOR PARAMETERS ON MAXILLARY RIGHT CENTRAL INCISORS IN DIFFERENT GENDER GROUPS

Mirko Soldo[1], Prof.dr.sc. Dubravka Knezović Zlatarić[2]
[1]*DMD. Community Health Center of Osiječko-baranjska County*
[2]*Department of Mobile Prosthodontics, School of Dental Medicine, Univeristy of Zagreb*

Aim: The aim of this study was to compare the differences in tooth color parameters: hue (h), value (L) and chroma (C), on the upper right central incisors of dental students according to gender, using digital spectrophotometer.
Materials and methods: A total of 23 dental students (same age, 23 years old) participated in this study. The color of the right maxillary central incisor was determined using VITA Easyshade V spectrophotometer (Vita Zahnfabrik, Bad Sackingen, Germany). Before each measurement the digital device was calibrated according to the manufacturer's instructions. The study involved those subjects with a healthy permanent central incisor without caries, fillings, endodontic procedures, prosthetic replacements, fixed orthodontic retainers or teeth whitening therapy. A retractor was placed in the subjects' mouths. The measurement area of the tooth was the central third of the tooth crown, and the measurement area was marked with a red waterproof marker. The values of hue (h), value (L) and chroma (C) on the upper right central incisor were measured and analysed using independent samples t-test.
Results: Measured teeth in female group were lighter, less saturated and more yellowish compared to male group in which the same teeth were darker, more saturated and more reddish. Statistically significant difference was not found (p>0,05).
Conclusion: Within the limitation of this study it may be concluded that the color of maxillary right central incisors in different gender groups does not differ within the same age group.
Keywords: tooth color, spectrophotometer, student of dental medicine, gender

DIGITALNA PROCJENA TRIJU PARAMETARA BOJE NA GORNJEM DESNOM SREDIŠNJEM SJEKUTIĆU S OBZIROM NA SPOL ISPITANIKA

Mirko Soldo[1], Dubravka Knezović Zlatarić[2]
[1]*dr.med.dent., Dom zdravlja Osiječko-baranjske županije*
[2]*Zavod za mobilnu protetiku Stomatološkog fakulteta Sveučilišta u Zagrebu*

Cilj: Usporediti razlike u vrijednosti triju parametara boje zuba: nijanse (h), svjetline (L) i zasićenosti (C) na gornjem desnom središnjem sjekutiću studenata dentalne medicine različitog spola koristeći spektrofotometar.
Materijali i metode: Istraživanje je provedeno na 23 studenta dentalne medicine (iste dobi, 23 godine). Boja desnog gornjeg središnjeg sjekutića određena je VITA Easyshade V spektrofotometrom (Vita Zahnfabrik, Bad Sackingen, Njemačka). Prije svakog mjerenja VITA Easyshade V spektrofotometrom uređaj je kalibriran prema uputama proizvođača. U istraživanju su sudjelovali ispitanici sa zdravim trajnim središnjim sjekutićima bez karijesa, ispuna, endodontskih zahvata, protetskih nadomjestaka, fiksnih ortodontskih retainera ili terapije izbjeljivanja zubi. Ispitanicima je zbog mjerenja postavljen retractor usnica. Područje mjerenja zuba bila je središnja trećina krune zuba, a mjesto mjerenja označeno crvenim vodootpornim markerom. Vrijednosti nijanse (h), svjetline (L) i zasićenosti (C) na gornjem desnom središnjem sjekutiću svakog ispitanika izmjerene su i analizirani t-testom za nezavisne uzorke.
Rezultati: Izmjereni zubi u ženskoj skupini ispitanika bili su svjetliji, manje zasićeni i žućkastiji u odnosu na mušku skupinu u kojoj su isti zubi bili tamniji, zasićeniji i crvenkastiji. Statistički značajna razlika nije pronađena (p>0,05).
Zaključak: S obzirom na ograničenja ove studije može se zaključiti da se boja gornjih desnih središnjih sjekutića u različitim spolnim skupinama ne razlikuje unutar ispitanika iste dobi.
Ključne riječi: boja zuba, spektrofotometar, studnet dentalne medicine, spol

PROTECTIVE EFFECT OF EXPERIMENTAL BIOACTIVE COMPOSITES ON ENAMEL – A PILOT STUDY

Nika Španović[1], Matej Par[2], Thomas Attin[3], Zrinka Tarle[2], Tobias T. Tauböck[3]
[1] *Community Health Center, Zagreb, Croatia*
[2] *Department of Endodontics and Restorative Dentistry, School of Dental Medicine, University of Zagreb, Gundulićeva 5, Zagreb, Croatia*
[3] *Department of Conservative and Preventive Dentistry, Center for Dental Medicine, University of Zurich, Plattenstrasse 11, Zurich, Switzerland*

Aim: Bioactive glasses (BGs) can be used to render resin composites anti-cariogenic. This pilot study aimed to investigate the protective effect of experimental BG-composites on enamel immersed in a repeatedly replenished acidic solution.
Materials and methods: Three experimental composites based on a photo-curable resin (60:40 wt% bisphenol-A-glycidyldimethacrylate and triethylene glycol dimethacrylate) and a total filler ratio of 70 wt% were prepared by replacing 0, 10, and 20 wt% of silanized reinforcing fillers (barium glass and silica) with unsilanized BG 45S5. Enamel blocks (3x3x1 mm, n=9) were prepared from intact human third molars. Light-cured composite specimens (diameter=7 mm, thickness=2 mm, n=3 per material) were immersed with enamel blocks in a lactic acid solution (5 mL, pH=4.0). The immersion medium was replenished every four days. Knoop microhardness (MH; load=100 g, dwell time=20 s; n=5 per measurement) and pH of the immersion medium were assessed at the following time points (days): 0, 4, 8, 12, 16, and 20. Statistical analysis was performed using a nonparametric one-way ANOVA on ranks (Kruskal–Wallis).
Results: The enamel blocks immersed with the 0 wt%-BG composite showed a statistically significant MH decline after 4 days, whereas the MH of enamel blocks immersed with the 10 wt%-BG composite remained unchanged up to 8 days. The enamel blocks immersed with the 20 wt%-BG composite showed no statistically significant MH change throughout the whole observation period. The pH value of the immersion medium was unchanged by the 0 wt%-BG composite, for the 10 wt% BG composite a transient pH increase was observed, while the 20 wt%-BG composite showed an extensive increase up to pH=9.8, which was maintained throughout the whole observation period.
Conclusions: A dose-dependent protective effect against repeated acid attacks was identified for experimental composites functionalized with 10–20 wt% of BG 45S5.
Keywords: bioactive composites, bioactive glass, microhardness, remineralization, pH
This study was supported by the Croatian Science Foundation (Project IP-2019-04-6183, Biomimetic intelligent composite materials).

ZAŠTITNI UČINAK EKSPERIMENTALNIH BIOAKTIVNIH KOMPOZITA NA CAKLINU – PILOT ISTRAŽIVANJE

Nika Španović[1], Matej Par[2], Thomas Attin[3], Zrinka Tarle[2], Tobias T. Tauböck[3]
[1] *Dom zdravlja, Zagreb, Croatia*
[2] *Zavod za endodonciju i restaurativnu stomatologiju, Stomatološki fakultet Sveučilišta u Zagrebu, Gundulićeva 5, Zagreb, Hrvatska*
[3] *Zavod za konzervativnu i preventivnu stomatologiju, Centar za dentalnu medicinu, Sveučilište u Zürichu, Plattenstrasse 11, Zurich, Švicarska*

Cilj: Eksperimentalni kompozitni materijali s dodatkom bioaktivnih stakala mogu zaštititi tvrda zubna tkiva od karijesa. U ovom pilot istraživanju procijenjen je zaštitni učinak eksperimentalnih kompozita s bioaktivnim staklom na caklinu uronjenu u otopinu kiseline koja je bila periodički obnavljana.
Materijali i metode: Tri eksperimentalna kompozita pripremljena su miješanjem svjetlosno-polimerizirajuće smole (60:40 težinskog udjela bisfenol A glicidil dimetakrilata i trietilenglikol dimetakrilata) i anorganskih punila pri ukupnom težinskom udjelu od 70%. Težinski udjeli od 0, 10 i 20 % silaniziranog ojačavajućeg punila (barijevo staklo i silika) bili su zamijenjeni nesilaniziranim bioaktivnim staklom 45S5. Blokovi cakline (3x3x1 mm, n=9) pripremljeni su iz intaktnih ljudskih trećih molara. Svjetlom polimerizirani uzorci kompozita (promjer=7 mm, debljina=2 mm, n=3 po materijalu) bili su uronjeni s blokovima cakline u otopinu mliječne kiseline (5 mL, pH=4,0). Otopina kiseline bila je obnavljana svaka četiri dana. Mikrotvrdoća prema Knoopu (opterećenje=100 g, trajanje utiskivanja=20 s, n=5 po mjerenju) i pH vrijednosti otopine izmjereni su nakon sljedećih vremenskih razdoblja (dani): 0, 4, 8, 12, 16 i 20. Statistička analiza provedena je neparametrijskom ANOVA-om (Kruskal-Wallis).
Rezultati: Blokovi cakline uronjeni u otopinu kiseline zajedno s kompozitom bez bioaktivnog stakla pokazali su statistički značajni pad mikrotvrdoće nakon 4 dana, dok je mikrotvrdoća cakline uronjene u otopinu kiseline s kompozitom koji je sadržavao 10% bioaktivnog stakla bila nepromijenjena sve do 8 dana. Blokovi cakline uronjeni u otopinu kiseline s kompozitom koji je sadržavao 20% bioaktivnog stakla nisu pokazali statistički značajnu promjenu mikrotvrdoće tijekom cijelom promatranog razdoblja. pH vrijednosti otopine kiseline bile su nepromijenjene kod kompozita bez bioaktivnog stakla, kod kompozita s 10% bioaktivnog stakla opažen je prolazni porast pH vrijednosti otopine, dok je kompozit s 20% bioaktivnog stakla doveo do izraženog porasta pH vrijednosti (do 9,8), koji je ostao održan tijekom cijelog razdoblja promatranja.
Zaključak: O dozi ovisan zaštitni učinak protiv ponavljanog kiselinskog napada opažen je kod eksperimentalnih kompozitnih materijala funkcionaliziranih bioaktivnim staklom pri težinskim udjelima od 10–20%.
Ključne riječi: bioaktivni kompoziti, bioaktivno staklo, mikrotvrdoća, remineralizacija, pH
Ovo istraživanje financirano je projektom Hrvatske zaklade za znanost (Projekt IP-2019-04-6183, Biomimetički inteligentni kompozitni materijali)

PSYCHOSOCIAL INFLUENCE OF DENTAL AESTHETICS ON THE DAILY LIFE OF STUDENTS OF THE UNIVERSITY OF SPLIT

Melanie Ugrin[1], Ivana Medvedec Mikic[2], Ivan Galic[3], Danijela Kalibovic Govorko[4]

[1]Faculty of Medicine, University of Split, Study of Dental Medicine
[2]Department of Oral Surgery, Faculty of Medicine, University of Split, University Hospital Center Split
[3]Department of Restorative Dental Medicine and Endodontics, Faculty of Medicine, University of Split; University Hospital Center Split
[4]Department of Orthodontics, Faculty of Medicine, University of Split, University Hospital Center Split

Aim: To determine the influence of dental aesthetics on the everyday life of students at the University of Split and to determine whether there is a difference in the influence of dental aesthetics on the everyday life of students of different faculties, different years of study and gender.

Materials and methods: 1300 students from the first to the sixth year of the University of Split participated in the research. In order to assess the psychosocial impact of dental aesthetics on the daily lives of students at the University of Split, we used the PIDAQ questionnaire - a questionnaire on the psychosocial impact of dental aesthetics supplemented with questions about current orthodontic therapy and satisfaction with results and needs for orthodontic therapy.

Results: Out of the total number of respondents (1300), there were 960 (73.8%) females 340 (26.2%) males. The most represented were students of the Faculty of Medicine (29.4%), while considering the year of study, the most represented were third-year students (22.7%). The results obtained showed a statistically significant difference in responses between faculties, while gender and year of study showed a low but still statistically significant difference. There is great satisfaction of students with their own dental aesthetics (more than 90%), in men slightly more than women.

Conclusion: More than 90% of students are satisfied with the appearance of their own teeth, and gender and year of study have plaques, a statistically significant impact on most responses. The reason for the high degree of satisfaction with their own dental aesthetics is probably the fact that 50% of students have undergone a certain type of orthodontic therapy.

Keywords: dental aesthetics, quality of life, PIDAQ questionnaire, University of Split

PSIHOSOCIJALNI UTJECAJ DENTALNE ESTETIKE NA SVAKODNEVNI ŽIVOT STUDENATA SPLITSKOG SVEUČILIŠTA

Melanie Ugrin[1], Ivana Medvedec Mikić[2], Ivan Galić[3], Danijela Kalibović Govorko[4]

[1]Medicinski fakultet Sveučilišta u Splitu, studij Dentalna medicina
[2]Katedra za oralnu kirurgiju, Medicinski fakultet Sveučilišta u Splitu, KBC Split
[3]Katedra za restaurativnu dentalnu medicine i endodonciju, Medicinski fakultet Sveučilišta u Splitu, KBC Split
[4]Katedra za ortodonciju, Medicinski fakultet Sveučilišta u Splitu, KBC Split

Cilj: Utvrditi utjecaj dentalne estetike na svakodnevni život studenata splitskog sveučilišta te utvrditi postoji li razlika u utjecaju dentalne estetike na svakodnevni život studenata različitih fakulteta, različitih godina studija i spola.

Materijali i metode: U istraživanju je sudjelovalo 1300 studenata od prve do šeste godine Sveučilišta u Splitu. Kako bismo procijenili psihosocijalni utjecaj dentalne estetike na svakodnevni život studenata splitskog sveučilišta koristili smo PIDAQ upitnik - upitnik psihosocijalnog utjecaja dentalne estetike nadopunjen pitanjima o dosadašnjoj ortodontskoj terapiji i zadovoljstvu rezultatima i potrebi za ortodontskom terapijom.

Rezultati: Od ukupnog broja ispitanika (1300), bilo je 960 (73,8%) osoba ženskog spola te 340 (26,2%) osoba muškog spola. Najzastupljeniji su bili studenti Medicinskog fakulteta (29,4%), dok su s obzirom na godinu studija najzastupljeniji bili studenti treće godine (22,7%). Dobiveni rezultati pokazali su statistički značajnu razlika u odgovorima između fakulteta, dok su spol i godina studija pokazali nisku, ali ipak statistički značajanu razliku. Postoji veliko zadovoljstvo studenata vlastitom dentalnom estetikom (više od 90%), u muškaraca neznatno više nego u žena.

Zaključak: Više od 90% studenata zadovoljno je izgledom vlastitih zubi, a spol i godina studija imaju slab, statistički značajan utjecaj na većinu odgovora. Razlog visokom stupnju zadovoljstva vlastitom dentalnom estetikom vjerojatno je činjenica da je 50% studenata prošlo određenu vrstu ortodontske terapije.

Ključne riječi: dentalna estetika, kvaliteta života, PIDAQ uitnik, Sveučilište u Splitu

IN VIVO EVALUATION OF WHITENING TOOTHPASTES EFFICIENCY AND PATIENT'S TREATMENT SATISFACTION

Nada Zorica Vladislavic[1], Antonija Tadin[2,3], Lidia Gavic[2,3], Daniel Jerkovic[3], Ivana Franic[4], Zeljko Verzak[1,5]

[1]Department of Dental Medicine, University Hospital Centre Zagreb, Zagreb, Croatia
[2]Department of Restorative Dental Medicine and Endodontics, Study of Dental Medicine, School of Medicine, University of Split, Split, Croatia
[3]Department of Maxillofacial Surgery, Clinical Hospital Centre Split, Split, Croatia
[4]Department of Medical Laboratory Diagnostic, University Department of Health Studies, University of Split, Split, Croatia
[5]Department of Pediatric and Preventive Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Aim: To assess the whitening efficiency and patient's satisfaction after usage of commercially available toothpastes with the different whitening ingredients.

Materials and methods: This prospective parallel study comprised 161 participants who were randomly divided into eight groups based on used whitening or control non-whitening toothpaste (Colgate Max Expert White – CMEW, Signal Daily White – SDW, Himalaya Sparkly White Herbalis – HSWH, Signal White System – SWS, Rembrandt Deeply White + Peroxide – RDWP, Splat Extreme White – SEW, Splat White Plus – SWP, and Kalodont Multi Repair – control). Tooth color change was evaluated using a spectrophotometer (CIELAB coordinates, ΔE). Measurements were performed at baseline, 30 days and 60 days after begging treatment and 30 days after completing treatment – follow-up. Side effects and satisfaction with the whitening outcome were reported throughout the questionnaire.

Results: A clinically significant tooth color change was recorded for CMEW (ΔE=3.75), HSWH (ΔE=3.99), SEW (ΔE=3.96) and RDWP (ΔE=3.34) after 30 days of use, while only for SEW (ΔE=3.61) after 60 days of use. None of the tested whitening toothpastes retained clinically significant change in color during the follow-up period. Participants that used SEW toothpaste were most of all satisfied with the final tooth color (80%).

Conclusion: Whitening toothpastes can show a perceptibly whitening effect after short time usage, but without a long-lasting impact. Toothpaste containing a combination of enzymes and peroxides showed the best whitening performance compared to those containing only enzymes, peroxides or abrasives.

Keywords: color measurement, toothpaste, tooth whitening, tooth color, patient satisfaction, side effects.

IN VIVO PROCJENA UČINKA ZUBNIH PASTA ZA IZBJELJIVANJE I ZADOVOLJSTVO PACIJENTA TRETMANOM

Nada Zorica Vladislavić[1], Antonija Tadin[2,3], Lidia Gavic[2,3], Daniel Jerkovic[3], Ivana Franic[4], Zeljko Verzak[1,5]

[1]Klinika za stomatologiju, Klinički bolnički centar Zagreb, Zagreb, Hrvatska
[2]Katedra za restaurativnu dentalnu medicinu i endodonciju, Studij za dentalnu medicinu, Medicinski fakultet, Sveučilište u Splitu Split, Hrvatska
[3]Odjel za maksilofacijalnu kirurgiju, Klinički bolnički centar Split, Split, Hrvatska
[4]Odsjek za medicinsko - laboratorijsku dijagnostiku, Sveučilišni odjel zdravstvenih studija, Sveučilište u Splitu, Split, Hrvatska
[5]Zavod za dječju i preventivnu dentalnu medicinu, Stomatološki fakultet, Sveučilište u Zagrebu, Zagreb, Hrvatska

Cilj: Procijeniti učinak izbjeljivanja i zadovoljstvo pacijenta nakon korištenja komercijalno dostupnih zubnih pasta s učinkom izbjeljivanja s različitim sastojcima.

Materijali i metode: Ova prospektivna studija s paralelnim grupama imala je 161 ispitanika koji su slučajno raspoređeni u osam skupina temeljem korištene zubne paste s učinkom izbjeljivanja ili kontrolne bez učinka izbjeljivanja (Colgate Max Expert White – CMEW, Signal Daily White – SDW, Himalaya Sparkly White Herbalis – HSWH, Signal White System – SWS, Rembrandt Deeply White + Peroxide – RDWP, Splat Extreme White – SEW, Splat White Plus – SWP, and Kalodont Multi Repair – kontrola). Promjena boje zuba procijenjena je spektrofotometrom (CIELAB koordinate, ΔE). Mjerenja su napravljena prije početka korištenja, 30 i 60 dana nakon početka tretmana, te 30 dana nakon završetka tretmana - praćenje. Nepoželjni učinci i zadovoljstvo s učinkom izbjeljivanja ispitani su u obliku upitnika.

Rezultati: Klinički značajna promjena boje je zabilježena kod zubnih pasta CMEW (ΔE=3,75), HSWH (ΔE=3,99), SEW (ΔE=3,96) i RDWP (ΔE=3,34) nakon 30 dana korištenja, te jedino kod SEW (ΔE=3,61) nakon 60 dana korištenja. Nijedna testirana zubna pasta s učinkom izbjeljivanja nije zadržala klinički značajnu promjenu u boji zuba tijekom perioda praćenja. Najviše ispitanika koji su koristili SEW zubnu pastu bili su zadovoljni postignutom bojom zuba (80 %).

Zaključak: Zubne paste s učinkom izbjeljivanja pokazuju izbjeljujući učinak nakon kratkotrajne uporabe, ali bez dugoročnog učinka. Zubna pasta koja sadrži kombinaciju enzima i peroksida pokazuje najbolje performanse izbjeljivanja u odnosu na one koji sadrže samo enzime, perokside ili abrazive.

Ključne riječi: mjerenje boje, zubna pasta, izbjeljivanje zubi, boja zuba, zadovoljstvo pacijenta, nepoželjno djelovanje