28th Annual Conference of the European Prosthodontic Association (EPA)

and

14th Scientific Congress of the Turkish Prosthodontic and Implantology Association (TPIA)

Kusadasi, Turkey, September 16-18, 2004.

Dear Colleagues and Friends,

On behalf of the organizing committee, I would like to welcome you to the 28th Annual Conference of the European Prosthodontic Association (EPA) which will be held in conjuction with the 14th Scientific Congress of the Turkish Prosthodontic and Implantology Association (TPIA) in Kusadasi/Turkey on September 16-18, 2004.

The main theme of the meeting will be "Why, When, Which – In Daily Prosthodontic Applications". The lectures will be on clinical cases and treatments in order to acknowledge the dental practitioners and the main topics will include all ceramic restorations, adhesive dentistry, implantology and reinforced polymers in prosthodontics.

We have invited outstanding international keynote speakers, researchers and clinicians to explore the potentials and the limitations of today's prosthodontics. Besides, free communication sessions (parallel sessions) and in addition to the scientific programme an extensive dental trade exhibition will take place presenting the participants the opportunity of gaining the latest information which will enhance their scientific and clinical knowledge and practical application.

The Conference Center will be in Kusadasi, a well known Aegean town which is crowned by Ephesus, one of the best-preserved ancient region in the world that combines a rich and diverse history with unmatched natural beauty, beaches and a magnificent climate.

It will be our greatest pleasure to invite you, your spouse and your teams to attend the events of the 28th Annual Conference of the EPA. I am sure that the accompanying persons will admire the Kusadasi setting, surrounded and embraced by ancient history, Ephesus and Virgin Mary while we discuss in contrast the past, the present and the future of prosthodontics.

We are looking forward to welcome you in Izmir.
Sincerely yours,

Prof. Dr. Atilla User
President of EPA 2004 and
the Organising Committee

ORGANIZING COMMITTEE

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GENERAL PROGRAMME

Thursday, September 16, 2004

09.00 – 17.00	Registration
09.30 – 10.00	Opening ceremony
10.00 – 10.30	Concert
10.30 – 11.30	Oxford Lecture / Dr. Warner Kalk (The Nederlands)
11.30 – 12.00	Lecture / Dr. Bengt Öwall (Denmark)
12.00 – 12.30	Opening of the Dental Trade Exhibition
12.30 – 14.00	Lunch
14.00 – 15.30	Oral presentations
14.00 – 14.45	Lecture / Dr. Jean Francois Roulet (Switzerland)
14.45 – 15.30	Lecture / Dr. Urs Brodbeck (Switzerland)
15.30 – 16.00	Coffee break
16.00 – 16.45	Lecture / Dr. Hans van Pelt (The Netherlands)
16.00 – 17.15	Oral presentations
20.30 – 23.00	Welcome cocktail

Friday, September 17, 2004

09.00 – 10.30	Oral presentations
09.00 – 09.45	Lecture / Dr. Antranik Eskici (Austria)
09.45 – 10.30	Lecture / Dr. Christof Pertl (Austria)
10.30 – 11.00	Coffee break
11.00 – 11.45	Lecture / Dr. Richard M. Palmer (United Kingdom)
11.45 – 12.30	Lecture / Dr. German Gomez Roman (Germany)
11.00 – 12.30	Oral presentations
12.30 – 14.00	Lunch
14.00 – 14.50	EPA General Assembly
15.00 – 15.30	Coffee break
15.30 – 16.15	Lecture / Dr. Özcan Mutlu (The Netherlands)
16.15 – 17.00	Lecture / Dr. Pekka K Vallittu (Finland)
15.30 – 17.15	Oral presentations
17.30 – 19.00	Hands-on course
20.30 – 24.00	Gala dinner

Saturday, September 18, 2004

09.00 – 10.30	Oral presentations
09.00 – 09.45	Lecture / Dr. Janice Fiske (United Kingdom)
09.45 – 10.30	Lecture / Dr. German Gomez Roman (Germany)
10.30 – 11.00	Coffee break
11.00 – 11.45	Lecture / Dr. Mogens Helbo (Denmark)
11.00 – 12.00	Oral presentations
12.00 – 12.30	Closing ceremony

Thursday, September 16, 2004 **MAIN HALL**

10.30 - 12.00 **I. SESSION**

Chaired by: Dr. J Wilson & Dr. A User

K 01. Why?, When?, Which?
Diagnostics, Patient selection and Treatment modalities in the (pre)edentulous patient
OXFORD LECTURE
Dr. Warner **KALK** (NL)

K 02. Specialisation in Prosthetic Dentistry in Europe
Dr. Bengt **ÖWALL** (DK)

14.00 – 15.30 **II. SESSION**

Chaired by: Dr. R Welfare & Dr. E Poyrazoglu

K 03. Can we base our treatment on evidence?
Dr. Jean Francois **ROULET** (CH)

K 04. Full ceramic applications
Dr. Urs **BRODBECK** (CH)

16.00 – 16.45 **III. SESSION**

Chaired by: Dr. P Wright & Dr. B Öztürk

K 05. Material selection and procedures for the treatment of occlusal tooth wear
Dr. Hans van **PELT** (NL)

Friday, September 17, 2004 **MAIN HALL**

09.00 – 10.30 **IV. SESSION**

Chaired by: Dr. W Murphy & Dr. B Tuncelli

K 06. Dental implants and bone augmentation techiques
Dr. Dr. Antranik **ESKICI** (AT)

K 07. Saving teeth vs dental implantology
Dr. Christof **PERTL** (AT)

11.00 – 12.30 **V. SESSION**

Chaired by: Dr. D Davis & Dr. S Sahin

K 08. Implant treatment in the periodontal patient
Dr. Richard M. **PALMER** (UK)

K 09. Time of implant placement: Immediate, immediate-delayed or late implant – What is the best?
Dr. German Gomez **ROMAN** (DE)

14.00 – 14.50 **EPA GENERAL ASSEMBLY** **MAIN HALL**

15.30 – 17.00 **VI. SESSION**

Chaired by: Dr. J Vacek & Dr. UH Reisoglu

K 10. How to prolong the service life of dental restorations using novel conditioning techniques?
Dr. Mutlu **ÖZCAN** (NL)

K 11. Clinical use of fiber-reinforced composites in prosthodontics
Dr. Pekka K **VALLITTU** (FI)

17.30 – 19.00

Hands-on course
Use of fiber-reinforced composites in direct bridge restorations
Dr. Pekka K **VALLITTU** (FI) **&** Dr. Mutlu **ÖZCAN** (NL)

Saturday, September 18, 2004 **MAIN HALL**

09.00 – 10.30 **VII. SESSION**

Chaired by: Dr. E Budtz-Jorgensen & Dr. AE Ersoy

K 12. Management of the patient with a profound Gag Reflex
Dr. Janice **FISKE** (UK)

K 13. Esthetic complications with single tooth implants in the frontal area of the maxilla – How to avoid?
Dr. German Gomez **ROMAN** (DE)

11.00 – 11.45 **VIII. SESSION**

Chaired by: Dr. W Hedzelek & Dr. S Canay

K 14. Overdentures for succesful treatment
Dr. Mogens **HELBO** (DK)

PARALLEL SESSIONS - HALL A

Thursday, September 16, 2004 **HALL A**

14.00 - 15.30 **A-I. PARALLEL SESSION**

Chaired by: Dr. B Özpinar & Dr. K Ünsal

O 01. Fracture strength and mode of failure of different all-ceramic implant abutments: An in-vitro study
M Okutan, F Butz, G Heydecke, JR Strub
Albert-Ludwigs University School of Dentistry, Freiburg, Germany

O 02. Stability measurements of ITI implants in the maxilla by means of resonance frequency analysis: A pilot study
JA Zix, G Kessler-Liechti, R Mericske-Stern
University of Bern School of Dental Medicine, Department of Prosthodontics, Bern, Switzerland

O 03. Achieving passive fit: Clinical evaluation and cost-effectiveness of a new method
D Mantokoudis, R Mericske-Stern
Bern University School of Dental Medicine, Department of Prosthodontics, Bern, Switzerland

O 04. Clinical evaluation of single tooth replacements by endoosseous implants
AE Ersoy, MK Ünsal, H Terzioglu, O Ozan
Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

O 05. Evaluation of corrosion potential between implant and superstructure alloys
AE Ersoy[1], N Örnek[1], O Ozan[1], L Aksu[2]
(1) Ankara University Faculty of Dentistry, Department of Prostodontics, Ankara, Turkey
(2) Gazi University Faculty of Education, Department of Chemistry, Ankara, Turkey

O 06. Implant supported prosthesis on free-end cases: A clinical evaluation
H Terzioglu, AE Ersoy, MK Ünsal, SE Özkir
Ankara University Faculty of Dentistry, Ankara, Turkey

15.30 – 16.00 Coffee break

16.00 – 17.15 A-II. PARALLEL SESSION

Chaired by: Dr. A Kesercioglu & Dr. Ö Inan

O 07. The long term evaluation of complications that can be encountered in implant prosthetic reconstructions MK Ünsal, AE Ersoy, H Terzioglu, G Yildirim Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

08. Occlusal factors of implant supported dentures
B Özpinar[1], H Koca[2], M Ulusoy[1], T Seçkin[2], C Cura[1], A Kazanç[2], B Gökçe[1], A Saraç[2], E Çömlekoglu[1]
(1) Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey
(2) Ege University Faculty of Dentistry, Department of Oral Surgery, Izmir, Turkey

O 09. Magnetic resonance imaging in prosthetic reconstruction of maxillo-facial defects with dental implants
H Hubalkova[1], J Mazanek[1], Z Starcuk[2], T Dostalova[1]
(1) Charles University 1st Medical Faculty, Department of Stomatology, Prague, Czech Republic
(2) Academy of Sciences of the Czech Republic Institute of Scientific Instruments, Brno, Czech Republic

O 10. Prosthetic rehabilitation of patient with maxillo-facial defect depend upon trauma
N Bozogullari, Ö Inan, MN Mutlu, A Karaman
Selçuk University Faculty of Dentistry, Department of Prosthodontics, Konya, Turkey

O 11. Angulated implants in tuberosity region: A finite element analysis study
B Gökçen[1], J Lenz[2], S Rues[2], U Lotzmann[1]
(1) Philipps-University Department of Prosthodontics, Marburg , Germany
(2) Karlsruhe University Department of Biomechanics, Karlsruhe, Germany

Friday, September 17, 2004 **HALL A**

09.00 - 10.30 **A-III. PARALLEL SESSION**

Chaired by: Dr. F Demir & Dr. A Saraçoglu

O 12. A multicentre study on effectiveness of a denture adhesive
C de Baat, MA van't Hof, L van Zeghbroeck, M Özcan, W Kalk
Erasmus Medical Center, Rotterdam, The Netherlands

O 13. Multidisciplinary therapy of permanent teeth agenesis
M Bartonova, T Dostalova
Charles University 1st Medical Faculty, Prague, Czech Republic

O 14. An analysis of maxillary anterior teeth: Facial and dental proportions
U Hasanreisoglu, S Berksun, K Aras, I Arslan
Ankara University Faculty of Dentistry, Ankara, Turkey

O 15. An assessment of the oral health knowledge and recall after a dental talk amongst nurses working with elderly patients: A pilot study
JM Wallis, D Davis
GKT Dental Institute, Department of Prosthetic Dentistry, London, United Kingdom

O 16. Tooth wear: Diagnosis and treatment strategies for prosthodontic rehabilitation
V Diserens, R Mericske-Stern
Bern University School of Dental Medicine, Department of Prosthodontics, Bern, Switzerland

O 17. Study on dental aesthetic conciousness
N Sinanoglu, J Margraf-Stiksrud, U Lotzmann
Philipps-University Department of Prosthodontics and Department of Psychology, Marburg, Germany

10.30 - 11.00 **Coffee break**

11.00 - 12.30 **A-IV. PARALLEL SESSION**

Chaired by: Dr. F Aykent & Dr. I Tulunoglu

O 18. Laser vs handpiece for tooth preparations
B Gökçe[1], E Litvak[2], B Özpinar[1], C Artunç[1], G Aksoy[1]
(1) Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey
(2) B.E.D. Laser Technologies, Yahud, Israel

O 19. Clinical performance of combined resin-bonded fixed partial dentures: 3 year follow-up
M Dündar, E Çömlekoglu, E Çal, MA Güngör, E Ekmekçi, E Kilinç, C Artunç, M Sonugelen, A Kesercioglu
Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey

O 20. Stress concentration in fiber reinforced composite fixed partial dentures
D Saraç, Y Burgaz
Ondokuz Mayis University Faculty of Dentistry, Department of Prosthodontics, Samsun, Turkey

O 21. Metal-ceramics 8-15 years post insertion – Retrospective study
J Charvat, T Dostalova, H Hubalkova
Charles University 1st Medical Faculty, Prague, Czech Republic

O 22. 3DFEA stress distribution analysis of metal-ceramic crown under occlusal load
A Catic[1], A Catovic[1], J Borcic[2], I Smojver[3]
(1) Zagreb University School of Dental Medicine, Department of Prosthodontics, Zagreb, Crotia
(2) Rijeka University School of Dental Medicine, Rijeka, Crotia
(3) Zagreb University Faculty of Engineering and Naval Architecture, Zagreb, Croatia

O 23. Tooth color determination by using digital imaging
A Elter[1], S Deger[2], J Özen[1], HS Gökçe[1], M Dalkiz[1], B Beydemir[1], C Sipahi[1]
(1) Gülhane Military Medical Academy, Ankara, Turkey
(2) Istanbul University Faculty of Dentistry, Department of Prosthodontics, Istanbul, Turkey

12.30 – 14.00 Lunch

14.00 – 14.50 EPA GENERAL ASSEMBLY MAIN HALL

15.00 - 15.30 Coffee break

15.30 - 17.15 A-V. PARALLEL SESSION

Chaired by: Dr. N Özden & Dr. G Aksoy

O 24. Conventional and ultrasonic adaptation of resin composites in ultraconservative preparations
ASA Kassir[1], NHF Wilson[2], PA Brunton[1]
(1) University of Manchester, United Kingdom
(2) King's College London, United Kingdom

O 25. Effect of air-pressure of cojet on bond strength to ceramics
TT Heikkinen, LVJ Lassila, JP Matinlinna, PK Vallittu
Turku University Department of Prosthetic Dentistry & Biomaterials Research,Turku, Finland

O 26. Effect of crosslinking monomer on polymerization of powder/liquid-system denture base resin
LVJ Lassila, M Vigren, PK Vallittu
Turku University, Department of Prosthetic Dentistry & Biomaterials Research,Turku, Finland

O 27. Shear bond strength of resin composite to casting alloys
F Aykent[1], S Kahvecioglu[1], AN Öztürk[1], C Sungur[2]
(1) Selçuk University Faculty of Dentistry, Konya, Turkey
(2) Selçuk University Technical Science Business Institute, Konya, Turkey

O 28. Effects of sandblasting variables on the bond strength of resin-to-alloys
M Kurt, YS Saraç
Ondokuz Mayis University Faculty of Dentistry, Department of Prosthodontics, Samsun, Turkey

O 29. Evaluation of base metal alloy bond strength to different restorative materials with adhesive resin
AU Güler, B Bek, H Köprülü, E Güler
Ondokuz Mayis University Faculty of Dentistry, Samsun, Turkey

O 30. The comparison of two casting techniques on microleakage between alloy and veneering materials
G Can[1], I Göktepe[1], S Erkut[2]
(1) Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey
(2) Baskent University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

Saturday, September 18, 2004 **HALL A**

09.00 – 10.30 **A-VI. PARALLEL SESSION**

Chaired by: Dr. Ü Güldag & Dr. P Imirzalioglu

O 31. Prosthetic treatment of patient with sclerosis multiplex (sm)
G Marada, G Szabó
Pécs University Dental School, Pécs, Hungary

O 32. Gingival convergence, path of insertion and retention force of RPD
F Asllani-Hoxha, A Islami, G Deda, M Kuci, T Pustina
University of Prishtina School of Dentistry, Prishtina, Kosova

O 33. Mobile dental prosthesis with dental load from the aspect of oral health
A Suljak, M Ajanovic, S Strujic, L Berhamovic, A Dardagan
Sarajevo University School of Dentistry, Sarajevo, Bosnia and Herzegovina

O 34. The prevalence of the occlusal disharmony of complete dentures
P Atashrazm, MH DashtiIslamic Azad Dental School, Tehran, Iran

O 35. Blood flow changes in abutment teeth of removable partial dentures
G Ceylan, N Yilmaz, G Ergün, D Kökçü
Ondokuz Mayis University Faculty of Dentistry, Samsun, Turkey

10.30 – 11.00 **Coffee break**

11.00 – 12.00 **A-VII. PARALLEL SESSION**

Chaired by: Dr. A Aytan & Dr. D Sen

O 36. Effect of construction stages of complete dentures on dimensional stability of denture base
G Can, L Karaagaçlioglu, B Özmumcu
Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

O 37. Implant supported overdentures: A clinical report
B Uludag, V Sahin
Ankara University Faculty of Dentistry, Ankara, Turkey

O 38. Effect of surface roughness on bacterial adhesion of composite resins
Ö Öztürk, AN Özden, A Misirligil
Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

O 39. Ion release from various casting alloys into tissue and urine
M Dalkiz, HS Gökçe, B Beydemir, A Alp
Gülhane Military Medical Academy Dental Sciences Center, Department of Prosthodontics, Ankara, Turkey

PARALLEL SESSIONS - HALL B

Thursday, September 16, 2004 HALL B

14.00 - 15.30 B-I. PARALLEL SESSION

Chaired by: Dr. A Biçakçi & Dr. F Bayindir

O 40. Reinforcement of poly-methylmethacrylate with plasma treated glass fibres
S Erkut[1], P Imirzalioglu[1], D Çökeliler[2], M Mutlu[2], D Özdemir[2]
(1) Baskent University Faculty of Dentistry, Ankara, Turkey
(2) Hacettepe University Faculty of Dentistry, Ankara, Turkey

O 41. An in vitro study to examine the effect of cement shade and moistured environment on the color of porcelain laminate veneers
L Karaagaçlioglu, B Yilmaz, B Gökdeniz
Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

O 42. Efficiency of different light sources on microleakage of ceramic inlay restorations
AG Özyesil, A Üsümez, M Kalkan
Selçuk University Faculty of Dentistry, Konya, Turkey

O 43. Ion exchange effect on flexural strength of Ceramco II and Colorlogic veneer porcelain
N Rashidan, H Mahgoli, S Sadray
Tehran and Shiraz University of Medical Sciences, Shiraz, Iran

O 44. Bond strength of all ceramic crowns to different core materials
Ö Inan, N Bozogullari, A Üsümez
Selçuk University Faculty of Dentistry, Konya, Turkey

O 45. Bond strength of all-ceramics: Acid vs laser etching
B Gökçe[1], B Özpinar[1], M Dündar[1], E Çömlekoglu[1], BH Sen[2], MA Güngör[1]
(1) Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey
(2) Ege University Faculty of Dentistry, Department of Endodontics, Izmir, Turkey

15.30 – 16.00 Coffee break

16.00 – 17.15 B-II. PARALLEL SESSION

Chaired by: Dr. S Sahmal & Dr. B Akkayan

O 46. Shear bond strenght of resin cements after temporary cementation
S Erkut[1], P Imirzalioglu, N Eminkahyagil[1], C Erkmen[2], D Özdemir[1]
(1) Baskent University, Ankara, Turkey
(2) Süleyman Demirel University, Isparta, Turkey

O 47. Stress distribution of various glass fiber-reinforced post designs
M Sütpideler[1,2], SE Eckert[2], M Zobitz[2], B Özpinar[3], Kai-Nan An[2]
(1) Air Force Hospital (TUAF), Izmir, Turkey,
(2) Mayo Clinic, Rochester, MN, USA
(3) Ege University Faculty of Dentistry, Izmir, Turkey

O 48. Fracture resistance of endodontically treated maxillary central incisors restored with different prefabricated post systems
S Toksavul[1], M Toman[1], B Uyulgan[2], P Schmage[3], I Nergiz[3],

(1) Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey
(2) Dokuz Eylül University Faculty of Engineering, Department of Metallurgical and Materials Engineering, Izmir, Turkey
(3) Hamburg University School of Dental and Oral Medicine, Department of Restorative and Preventive Dentistry, Hamburg, Germany

O 49. Bond strengths of three dowel systems to root canal dentin
M Kalkan, AN Öztürk, A Üsümez, S Belli, G Eskitascioglu
Selçuk University Faculty of Dentistry, Konya, Turkey

O 50. Fracture resistances of different post and core combinations
FT Dilmener, C Sipahi, M Dalkiz, B Beydemir
Gülhane Military Medical Academy Dental Sciences Center, Department of Prosthodontics, Ankara, Turkey

Friday, September 17, 2004 HALL B

09.00 - 10.30 B-III. PARALLEL SESSION

Chaired by: Dr. G Yilmaz & Dr. H Terzioglu

O 51. Shape and size of dental arch – A 5 year prospective study
T Dostálová[1], M Bartonová[1], J Racek[1], E Tauferová[1], V Smutni[2]
(1) Charles University 1st Medical Faculty, GFH, Department of Prosthodontics, Prague, Czech Republic
(2) Czech Technical University Faculty of Electric Engineering, Center for Machine Perception, Prague,Czech Republic

O 52. Hemidentate – restorative treatment considerations
E Krause
Tel-Aviv University The Maurice and Gabriela Goldschleger School of Dental Medicine, Department of Prosthetic Dentistry, Tel-Aviv, Israel

O 53. The comparison of load distribution of free ended removable partial dentures on the supporting structures by using holographic interferometry
M Yenisey[1], M Ulusoy[2]
(1) Ondokuz Mayis University Faculty of Dentistry, Department of Prosthodontics, Samsun, Turkey
(2) Ankara University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

O 54. Condylar guidance registration using orthopantomographic radiographs
I Gilboa[1], I Kaffe[2], M Gross[2]
(1) Private practice, Netanya, Israel
(2) Tel- Aviv University Gabriella and Morris Goldshleger School of Dental Medicine, Tel-Aviv,

O 55. Cephalometric evaluation of the vertical dimension of occlusion
L Strajnic
Medical Faculty Dental Clinic, Novi Sad, Serbia and Montenegro

O 56. Relationship of occlusal vertical dimension to the functions of the stomatognathic system
E Ekmekçi[1], B Öztürk[2], M Sonugelen[2], ME Sabah[(1)] SSK ANKARA Mouth and Dental Health Center, Ankara, Turkey[2)] Ege University Faculty of

10.30 - 11.00 Coffee break

11.00 - 12.30 **B-IV. PARALLEL SESSION**

Chaired by: Dr. M Sonugelen & Dr. S Deger

O 57. The use of overdentures in clinical dental practice
Ö Inan, A Acar, D Enhos
Selcuk University Faculty of Dentistry, Department of Prosthodontics, Konya, Turkey

O 58. Synovial fluid apoptosis in the TMJ's with non reducible disc displacement
P Imirzalioglu, S Uçkan, N Güler, A Haberal, D Uçkan
Baskent University Faculty of Dentistry, Ankara, Turkey

O 59. Finite element stress analysis of functional stresses produced in temporomandibular joint by vertical forces at different occlusion types
O Eraslan, G Eskitascioglu
Selçuk University Faculty of Dentistry, Department of Prosthodontics, Konya, Turkey

O 60. Emotional characteristics of temporomandibular disorder patients
N Hersek, AC Çalis, A Siranli
Hacettepe University Faculty of Dentistry, Department of Prosthodontics, Ankara, Turkey

O 61. Measuring cervical range of motion and angle of mouth opening
UI Destan, B Gökçe, B Özpinar, M Sonugelen
Ege University Faculty Dentistry, Department of Prosthodontics, Izmir, Turkey

12.30 – 14.00 **Lunch**

14.00 – 14.50 **EPA GENERAL ASSEMBLY** **MAIN HALL**

15.00 - 15.30 **Coffee break**

Friday, September 17, 2004 **HALL B**

15.30 - 17.15 **B-V. PARALLEL SESSION**

Chaired by: Dr. E Aras & Dr. C Cura

O 62. Patient evaluation of treatment with implant-supported fixed partial dentures
B Akoglu, M Uçankale, Y Özkan, Y Kulak-Özkan
Marmara University Faculty of Dentistry, Istanbul, Turkey

O 63. Patient satisfaction with mandibular implant retained overdentures during the first year of service
M Uçankale, B Akogu, Y Özkan, Y Kulak-Özkan
Marmara University Faculty of Dentistry, Istanbul, Turkey.

O 64. Comparasion of two and three dimensional FEM analysis in dental implants
M Sevimay, O Eraslan, G Eskitascioglu
Selçuk University Faculty of Dentistry, Department of Prosthodontics, Konya,Turkey

O 65. Prosthodontic applications for obstructive sleep apnea treatment: A prospective study
H Kurtulmus[1], HS Cotert[1], A User[1], C Bilgen[2], E Aras[1]
(1) Ege Universty Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey

(2) Ege University Faculty of Medicine, Department of Otorhinolaringology, Izmir, Turkey

O 66. Education on upper airway sleep disorders in turkish dental schools
E Kale, AD Izgi, R Nigiz
Dicle University Faculty of Dentistry, Diyarbakir, Turkey

O 67. An alternative technique by using digital photography for fabricating a custom made ocular prosthesis
M Kocacikli, S Yalug, H Yazicioglu
Gazi University Faculty of Dentistry, Ankara, Turkey

Saturday, September 18, 2004 HALL B

09.00 – 10.30 B-VI. PARALLEL SESSION

Chaired by: Dr. BC Uludag & Dr. B Sermet

O 68. The effects of two desensitizing agents on pulpal blood flow
G Ceylan, N Yilmaz, S Kurt, D Kökçü, T Külünk
Ondokuz Mayis University Faculty of Dentistry, Department of Prosthodontics, Samsun, Turkey

O 69. The effect of dentin desensitizing agents on crown retention
C Cura, A Saraçoglu
Ege University Faculty of Dentistry Department of Prosthodontics, Izmir, Turkey

O 70. Effect of dentin disinfectants on the postoperative sensitivity of prepared teeth
E Çal[1], M Türkün[2], M Dündar[1], E Ekmekçi[3]
(1) Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey
(2) Ege University Faculty of Dentistry, Department of Restorative Dentistry and Endodontics, Izmir, Turkey
(3) SSK Ankara Mouth and Dental Health Center, Ankara, Turkey

O 71. Comparison of bond strength to dental substrates with different surface treatments
B Gökçe, B Özpinar, C Artunç
Ege University Faculty of Dentistry, Department of Prosthodontics, Izmir, Turkey

O 72. Microleakage of direct and indirect fiber reinforced composite inlays
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O 73. Evaluation of different resin systems in luting of ceramic core materials
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KEYNOTE LECTURES
(Abstracts)

K 01
OXFORD LECTURE

Why?, When?, Which?
Diagnostics, Patient selection and Treatment modalities in the (pre)edentulous patient
Dr. Warner **KALK** (NL)

Dental health has much improved in several countries. Epidemiologic figures indicate that the number of elderly people with remaining teeth is increasing due to changing patterns of dental awareness and increased fluoride use. Nevertheless there are still many patients who have lost most of their teeth.
The number of remaining natural teeth is one of the most widely used method for evaluating oral health and the prosthetic treatment of patiënts with a mutilated dentition has long been considered to be synonymus with removable dentures, wich often leads to disappointing results.The previously prevailing concept of the necessity of prosthetic replacement for most lost teeth has been refuted by convincing outcomes of clinical research. Based on these outcomes an expert group of the World Health Organisation (1992) stated the following with respect to the replacement of lost teeth :
"When it is not functional or aesthetically necessary teeth should not be replaced. The concept of a shortened dental arch seems to be a realistic approach when cariës levels are high and resources are limited".
Maintaining the remaining teeth in a mutilated dentition could be extremely valuable if they can be used in the prosthetic treatment-plan facilitating superior therapeutic alternatives to complete dentures. Moreover an increasing number of patients does not accept to loose there (remaining) teeth or is not satisfied with removable dentures and ask for dental implants.
Today modern proshodontics involves a much broader concept. Many problems reported by conventional complete denture wearers, usually in association with the edentulous mandible, can be eliminated when osseo-integrated implants are used to support removable overdentures. Also the atrophic maxilla may present simular difficulties which often is further complicated by the destabilizing effect of remaining mandibular natural (anterior) teeth and skeletal malrelationships.
In this respect diagnostics and patient selection in prosthodontic will be discussed and prosthodontic as well as implantologic treatment modalities for patiënts who have lost many of or all their teeth will be elucidated.

K 02
Specialisation in Prosthetic Dentistry in Europe
Dr. Bengt **ÖWALL** (Denmark)

A report on a meeting which aimed to present the status, analyse and promote specialisation and specialist education in Europe.
A group of 19 prosthodontists met for two days to consider specialisation in Prosthetic Dentistry in Europe. By specialisation it was meant a legal recognition and/or governmental (or equal) authorisation based on a specialist education program.
There are no EU regulations and the recognition of dental specialities lies independently under the jurisdiction of the individual countries. Specialisation in Prosthetic Dentistry is recognised in 18 countries in Europe (data is missing from 12 European countries). There is no clearly defined scope of the speciality. In most countries TMD and Maxillofacial Prosthodontics are included in Prosthodontics. In 12 of the 18 countries with the speciality there are less than 50.000 inhabitants per specialist in Prosthetic Dentistry.
The education programs varied from 3 to 5 years between the 7 countries participating in the meeting that had a speciality. Belgium, Norway, Germany and Greece have university authorised programmes in Prosthetic Dentistry but no recognised speciality.
The greatest obstacles reported for the introduction of a speciality in Prosthetic dentistry were that Prosthetic Dentistry is considered general dentistry, and that in some countries a specialist needs to cease practising outside the speciality. Countries with the speciality reported no conflicts with general practitioners, and an improvement of the general quality of patient care within the discipline. The conclusion was that an introduction of the speciality would raise the level of care, balance "self-made" specialists, harmonise the discipline over Europe and enhance free movement of professionals and create a safe reference for public employers.

K 03
Can we base our treatment on evidence?
Dr. Jean Francois **ROULET** (CH)

Evidence based medicine/dentistry means to base our diagnostics, and therapy decisions on scientific knowledge. There are different levels of evidence, the review of random controlled prospective blinded studies being the strongest.
In dentistry the key issue is longevity. However, longevity depends on many different factors and therefore the outcome of clinical studies must be discussed with caution. As a rule, one should base diagnostics and treatment on evidence; however, because there are problems with clinical studies, one should also accept the results of in vitro and simulation studies.

K 04
Full ceramic applications
Dr. Urs **BRODBECK** (CH)

The search for tooth colored and metal-free restorations is one of the major challenges in dental research. For several decades, ceramic has been used as a restorative material because of its aesthetics and intraoral stability. Unfortunately, the survival rate of most full ceramic systems seemed unsatisfactory; due to the natural brittleness of ceramic, fractures had been the primary reason for the high failure rates in the past. But ceramics went though dramatic developments and the material properties changed significantly. In combination with innovations and improvements in adhesive technology, new possibilities were evolved to restore single teeth and to replace missing teeth. Nowadays the clinician has a variety of different ceramic products available to restore his patients metal free, to satisfy high esthetic demands or to work in a noninvasive way that preserves natural tooth structure. Sintered ceramics, pressable ceramics and high strength ceramics such as alumina and zirconia are described and critically discussed.
This lecture will present a concept out of private practice how to treat patients with full ceramic restorations. Small edge ups and full veneers, inlays/onlays and partial crowns, full crowns, three-unit-bridges, multiple-unit-bridges, adhesive and cantilever bridges, posts for implants and non-vital teeth: the repertoire of ceramic restorations has grown extensively and should be of interest for any modern prosthodontist. For most of these different restorations, there exist clinical long term results. It is up to the clinician now, which products he wants chose for his patients. Many restorative techniques will be presented with mostly intraoral slides. Heaps of clinical cases will ensure inspiration for the practitioner's daily work and inform about all the different ceramics available and their fields of application.

K 05
Material selection and procedures for the treatment of occlusal tooth wear
Dr. Hans van **PELT** (NL)

Wear of dental hard tissues is becoming a serious problem and many dentists are faced with it. Localized or generalized, excessive. Wear has many clinical manifestations. As long as patients do not complain, it will not be treated in generally. However, if the patient starts complaining about pain or aesthetics the treatment is much more difficult. Supervised neglect or not, wear should be treated in an early stage to reduce the cost of the treatment and to save as much tooth material as possible.In this lecture treatment options are presented for localized and minimal wear as well as for excessive and generalized worn dentitions. Direct adhesive techniques using composites are superior to attack these problems, although conventional crowns and porcelain restorations can not me missed in the dentist armentarium.

K 06
Dental implants and bone augmentation techniques
Dr. Dr. Antranik **ESKICI** (AT)

Implant prosthetics has found its way into the daily clinical practice of general dentists. Often it is the patient himself who asks about possible treatment options with dental implants. The dentist then is forced to inform his patients on alternative prosthetic restorations with implants and also to offer them this modality.Nowadays, if a dentist is confronted with patients who show large alveolar bone deficits due to general atrophies, trauma or tumor resection, one cannot argue that implants are not possible because of lack of bone. With the modern techniques of bone augmentation we can help almost all patients if they are not in very compromised general health.

With different augmentative procedures we are able to create an ideal foundation for implantation in order to achieve optimal prosthetic results. We are using both oral and extra-oral autogenous bone which does contain natural BMP and has the highest possible healing capacity. The so new formed bone allows stabile osseointegration and leads to predictable clinical results.Certainly not every dentist can be trained in these sophisticated bone augmentation techniques. But one can use cooperation with surgically experienced colleagues in order to achieve optimal restorations for his patients.
In this lecture different treatment options will be presented and their indication and technique will be demonstrated by means of clinical cases.

K 07
Saving teeth vs dental implantology
Dr. Christof **PERTL** (AT)

The dilemma confronting many dentists today is that innovations and well defined specialisations have greatly enlarged the treatment realm for tooth preservation as well as for tooth replacement. This has led to a paradox: as knowledge and treatment options have increased in each of the disciplines. Thus, a patient presenting with a particular problem to an endodontist, an implantologist, a periodontist or a prosthodontist may be presented with 4 completely different treatment plans.In particular clinical dilemmas in decision-making as "conventional or surgical endodontics versus extraction and implantation", "teeth preservation with periodontal treatment or extraction and placing implants" and finally "replacing lost teeth with conventional prosthetics versus implants as logical abutments" will be discussed. Both own prospective studies and a literature review will be presented to address these questions. Clinical cases will illustrate the different treatment options.The lecture will not eliminate all controversy and cannot provide one particular strategy for each case. Instead one should gain a wider perspective and thereby profit for the daily clinical decision making process.

K 08
Implant treatment in the periodontal patient
Dr. Richard M **PALMER** (UK)

Periodontitis is a common cause of tooth loss and many patients referred for implant treatment suffer from this condition. It is also often difficult for clinicians to decide when to extract a severely involved tooth and when to provide periodontal treatment. Periodontitis may be considered a risk factor in terms of bone loss, the presence of a pathogenic microflora and peri-implantitis. In addition many patients smoke, which is a common risk factor for both periodontitis and implant failure.

K 09
Time of implant placement: Immediate, immediate-delayed or late implant – What is the best?
Dr. German Gomez **ROMAN** (DE)

Due to the material problems posed by ceramic implants, they were used lesser and lesser by the practitioners. Since a few years this kind of implant treatment has become a new revival with the development of the Frialit-2 implant system that replaces the old ceramic implant, this
implant modality has gained popularity. The Frialit 2 system (Friadent, Mannheim, Germany) is a further development of the Tubingen immediate ceramic implant (Frialit-1 immediate implant) and has been available since its introduction in 1990 as the stepped screw and stepped cylinder. The main rationale behind the Frialit-1 immediate implant was to prevent the atrophy of the alveolar process by placing implants as early as possible after tooth loss.The concept presents different characteristics: a C.P. titanium one-piece stepped screw or stepped cylinder implant designed similar to the Tubingen implant. However, the external dimensions of both implants are the same. The implants no longer have the coronal groove of the Tubingen implant. This section has been replaced by a highly polished titanium collar. Initial results have already been published.

K 10
How to prolong the service life of dental restorations using novel conditioning techniques?
Dr. Mutlu **ÖZCAN** (NL)

Oral milieu is an aggressive environment. Despite the increased effort to improve the adhesion between various restorative materials in dental applications, on occasion, failures are still being experienced either in the form of debonding, delamination or fractures under clinical conditions.

Renewal of restorations is often accompanied by the associated loss of tooth tissue/restorative material by progressive cavity enlargement or the restoration itself and repeated insults to the pulp. Although there is little published literature on the subject, repair of a restoration is more cost beneficial than total replacement whereever appropriate. It can be considered as a trend towards a less interventionist procedure without removing an integral part of the tooth or the restoration. Experience indicates that whatever the circumstances of the repair, often an adhesive approach should be considered in the case of repair of a restoration. In order for a repaired/rebonded/relaminated restoration to withstand functional loads, strong and durable bond is desired to maintain the remaining restoration in function. Because many factors affect the bond strengths of polymers to restorative materials, it is necessary for clinicians to understand the characteristics of the substrate and the conditioning methods to be chosen for ideal adhesion in order to prolong the service life of a repaired restoration. The state-of-art, as well as pros and cons of recent developments in modern surface conditioning methods on reinforced all-ceramics, various alloys, E-glass fibers and polymer materials with a particular emphasis on air-borne particle abrasion, tribochemical, pyrolytic silica coating and silanization or optional fiber application will be discussed. This lecture will deal with the recognition of clinical failures experienced worldwide in dentistry and elucidate the relations between the facts related to the material properties and the adhesion principles. Practical solutions will be advised to the clinicians to be used either at baseline or when a failure is experienced in order to prolong the expected service life of dental restorations.

K 11
Clinical use of fiber-reinforced composites in prosthodontics
Dr. Pekka K **VALLITTU** (FI)

The use of fiber-reinforced composites (FRC) has rapidly increased in dentistry. The first clinical applications were tested in early 1960´s with removable denture reinforcements. It took 40 years until the FRCs have became a real alternative to be used clinically. In late 1990´s the novel approach to use so-called polymer preimpregnation of glass fibres was introduced. Since then, the breakthrough of the FRCs in dentistry can said to be happened. Currently used FRC materials are made of silanted glass fibres that had been preimpregnated with dimethacrylate resin systems, or preferably with semi-interpenetrating polymer network (semi-IPN) resins. The latter provides better clinical handling and bonding properties for the FRC. Clinically, the FRCs can be used in almost all fields of dentistry, but the most fascinating applications can be found in prosthodontics. Beside of using FRCs in removable prosthodontics as reinforcement, the material allows fixed partial dentures to be designed in a new tissue-saving and biomechanically optimized way. The concept of minimally invasive prosthodontic can be utilized by FRCs. There are now possibilities to combine inlay, onlay,
full-crown, surface retaining wings and root-canal posts to one prosthetic appliance, meaning that almost all remaining tooth structure can be preserved during the treatment. The clinical experience of up to 7 years years with appliances of this kind suggests their potentiality as an alternative for some removable partial dentures and also for some fixed partial dentures. Rather than defining the FRC appliances as permanent, semi-permanent or temporary appliances, the entire prosthodontic treatment chain needs to be understood as a dynamic treatment process. In this process, the FRCs are playing an important role.

K 12
Management of the patient with a Profound Gag Reflex
Dr. Janice **FISKE** (UK)

The aim of this paper is to explore the aetiology and management of the profound gag reflex. Gagging is a normal, protective reflex. Whilst some people have a reduced reflex, others have a pronounced, exaggerated reflex that can be a major barrier to the individual's ability to accept dental care and to the clinician's ability to provide dental care. It can compromise all aspects of dentistry from the diagnostic procedures of examination and radiography to all forms of active treatment - especially the provision and acceptance of removable prostheses. Additionally, it can be a deterrent to people seeking timely dental care Overcoming patients' gagging problems requires the combination of a sympathetic and empathic approach to dental care with individualised, tailored, flexible treatment strategies delivered by a knowledgeable and experienced dental team. To achieve success, clinicians require knowledge and experience of a variety of management strategies, the ability to assess which technique(s) are most appropriate to the situation, and to decide whether techniques can be used alone or in combination.
The first stage of management is to assess the nature of the gagging problem through an accurate history and clinical assessment of its severity. Many strategies have been explored in an attempt to

alleviate the profound gag reflex. They include relaxation, distraction and desensitisation techniques; therapies of complementary medicine such as hypnosis and acupuncture; psychological and behavioural therapies; and local anaesthetic, conscious sedation and general anaesthesia techniques.The presentation will provide a practical overview of the various techniques that will focus onthe presenter's experience in using acupuncture to control the gag reflex.

K 13
Esthetic complications with single tooth implants in the frontal area of the maxilla – How to avoid?
Dr. German Gomez **ROMAN** (DE)

After loss of a tooth in the anterior maxilla, the prosthetic restoration of the gap can be performed with conventional methods (FPD, bonded bridge, etc.). Many disadvantages of such methods can be avoided by the treatment with single tooth implants. From time to time, the esthetic restoration of a single tooth implant in the anterior maxilla is considered as a challenge for the dentist, especially if the alveolar ridge is partially atrophied. Surgical techniques that allow for predictable esthetic results must be used. Patients desire optimal esthetics, irrespective of their initial conditions. Very often, considerable efforts are necessary to meet the patient's demands. In this lecture two important prerequisites for esthetic success are discussed: The design of the surgical flap and the correct oro-vestibular position of implant placement.

K 14
Overdentures for succesful treatment
Dr. Mogens **HELBO** (DK)

Overdentures retained by precision attachments has, for a long time, been the treatment of choice in the natural dentition. But at the early start of implant treatment, only fixed bridgeworks were accepted. Overdentures combined with implants has now been accepted as a good and reliable treatment.

-How shall we make the constructions?
-Ball attachments or bar retention?
-How many implants in the upper jaw?
-How many implants in the lower jaw?
-Clips or Dolder matrices?
-Resilient or rigid constructions?
At the lecture, different options will be demonstrated. Rules for load, choice of attachments and design of the overdenture will be shown. The lecture will be directed to dentists and dental technicians.

ORAL PRESENTATIONS (Abstracts)

O 01
Fracture strength and mode of failure of different all-ceramic implant abutments: An in-vitro study
M Okutan, F Butz, G Heydecke, JR Strub
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Ceramic implant abutments provide improved esthetics. However, there are concern as regarding their functional reliability. The aim of this study was to compare metal-reinforced zirconia and pure alumina abutments regarding their fracture strength after chewing simulation and static loading. Forty-eight standard diameter implants with an external hexagon were divided into three groups of 16 implants each. Group A: titanium-reinforced zirconia abutments (ZiReal®, 3i), group B: pure alumina (Ceradapt®, Nobel Biocare), control group: conventional titanium abutments (GingiHue®, 3i).
All abutments were connected to the implants using gold-palladium screws with a 24-carat gold coating. The metal crowns were adhesively luted to the abutments and exposed to 1.2 million cycles in a computer-controlled chewing simulator. Surviving specimens were subsequently loaded until fracture in a static testing device. Fracture loads and fracture patterns were recorded and statistically analyzed.
All specimens but one of group B survived chewing simulation. No screw loosing occurred. The mean fracture loads (±standard deviations) were as follows: Group A: 294 N (±53), group B: 239 N (±83),

and control group: 324 N (±85). The smaller fracture loads in group B were statistically significant ($p \leq 0.05$). The use of pure alumina abutments (Ceradapt®) resulted in more catastrophic failures. Titanium-reinforced zirconia abutments performed similar to titanium abutments and can be recommended as an esthetic alternative for the restoration of single implants in the anterior region. All-ceramic abutments made of alumina yield less favorable properties. The use of a gold-coated gold-palladium screw can efficiently prevent screw loosening.

O 02

Stability measurements of ITI implants in the maxilla by means of resonance frequency analysis: A pilot study

JA Zix, G Kessler-Liechti, R Mericske-Stern
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The objective of the present study was to determine standard ISQ values for clinical successfully ostesseointegrated ITI implants in the maxilla. Further, the influence of several cofactors on implant stability was evaluated. Implant stability measurements by means of resonance frequency analysis (RFA) were performed using Osstell in 35 edentulous patients with a total of 120 maxillary ITI implants. Based on the time interval between implant insertion and measurements, theISQ values (implant-stability quotient) of anterior and posterior implants were divided into subgroups of <3 months (n=22), 3-12 months (n=40) and >1year (n=58). Statistical analysis was performed using a mixed-effects model.
The implant stability of all measured implants was 52.5+/-7.9 ISQ (range 40 to 68 ISQ). Statistical analysis showed no significant differences in ISQ values between the three tested time intervals: <3 months (48.6+/-4.6 ISQ), 3-12 months (52.3+/-7.7 ISQ) and >1year
(54.1+/-8.7 ISQ). Neither for loaded (54.4+/-8.6 ISQ) vs. unloaded (48.8+/-4.6 ISQ) nor for anterior (53.1+/-8.2 ISQ) vs. posterior implants (51.8+/-7.7 ISQ) a significant difference could be found. Gender was the only highly significant parameter ($p<0.0004$). Men showed higher implant stability on average than women (56.3+/-6.6 vs. 48.7+/-7.4 ISQ). No other influence (smoking, diabetes mellitus, bone quality, age, implant length or diameter) on implant stability was found. A comparison with interaforaminal implants in edentulous patients showed that mandibular implants tend to exhibit higher values. Standard values for fully osseointegrated maxillary ITI implants exhibit a wide interindividual range. Postmenopausal women exhibit significantly lower ISQ values compared to men of the same age group. Single RFA measurements of implants have no prognostic value. Thus, measurements should be repeated over time to determine the performance of an implant. [3] Ege University Faculty of Dentistry, Department of Orthodontics, Izmir, Turkey

O 03

Achieving passive fit: Clinical evaluation and cost-effectiveness of a new method

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It is often discussed whether passive fit of prosthetic reconstructions on implants is fundamental for the maintenance of periimplant bone. While misfit can be demonstrated by means of FE-models, it is clinically not well controlled.
The aim of the study was the clinical evaluation of implant-suprastructures fabricated by means of the Cresco Ti® Precision method. This method should enhance passive fit and facilitate laboratory and clinical procedures. During a one year period 17 patients
(5 females/12 males) were treated with a total of 62 ITI® implants. 9 bridgeworks and
11 prostheses based on bars were performed using the Cresco Ti® Precision method.
A total of 14 gold- and 6 titanium-frameworks were fabricated. The surgical and prosthodontic treatments had been performed by one investigator. Time records of clinical prosthodontic procedures by the dentist were taken. After completion of the treatment patients followed a strict maintenance program. The fit of bars and prostheses was checked with x-rays. Prosthetic complications were registered according to 3 categories. Cost analysis at the end of the treatment was performed related to material and time.

During the one year observation no implant has failed. No clinical misfit was observed and no framework had to be remade. Xray-analysis showed an excellent fit of completed prostheses and bars. 4 patients had minor prosthetic complications (screw tightening, tightening of the bar retainers). Absolute cost for material and laboratory procedures decreased in parallel to an increase of the number of implants and size of the suprastructure. For single clinical steps a reduction of time up to 45% was observed as compared to the standard prosthetic procedures.
From a one year observation period it can be concluded that the Cresco Ti® Precision method is an efficient, time and cost saving method to fabricate well-fitting frameworks.

O 04
Clinical evaluation of single tooth replacements by endoosseous implants
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The aim of this study is to evaluate single tooth replacements by endosseous implants. In the time period from 1990-2004, 365 patients were consequtively admitted for treatment with a total of 486 implants. Immediate surgery or loaded implants were excluded from this study. All crowns were ceramic to metal fused with a ceramic occlusal surface and mounted to the abutment. The mean observation time was 8.5 years ranging from 1 to 13 years. The implants were monitored regularly by periimplant parameters. Periapical radiographs using the paralel technique were taken after the healing period and for comparative measurements. 7 implants were lost during the healing phase, while no failures occured after a loaded period of 1 to 13 years, respectively. The 14 year cumulative survival rate was 98.7% and that of crowns 97,5%.
It was concluded that changes in the crestal bone level occur mostly in the first postsurgical year. Prosthetic complications were rare, mostly encountered in the first year after loading and often limited to abutment loosening and decementation.

O 05
Evaluation of corrosion potential between implant and superstructure alloys
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Titanium and its alloys are predominantly used in dentistry for implant material due to their inertness, lack of toxicity and more importantly their biocompatibility. Although it is implanted in bone tissue, the use of different metal alloys as restorative materials in their superstructure makes them susceptible to corrosion stemming from the galvanic current which occurs
between the titanium alloy and surface material. Although noble metal and titanium alloys are perfect materials for the superstructure of the implants, the materials used for this purpose aregenerally Cr-Ni alloys due to the economic aspects and cumbersome casting conditions of
Ti alloys.
The aim of this study is in vitro determination of the potential differences between various implant materials and their Cr-Ni superstructures. In this study the corrosion potentials of implant alloys and their Cr-Ni superstructures will be determined by the use of electrochemical techniques such as cyclic voltammetry, Tafel plots and impedance spectroscopy. The study will be carried out at different pH values and aggressive media at body temperature.

O 06
Implant supported prosthesis on free-end cases: A clinical evaluation
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During the transition phase from removable partial prostheses to fixed prostheses, tooth-implant and implant supported fixed bridges can be used depending on the state of the free-end space. Especially in tooth-implant supported prosthesis, superstructures placed on two different supporting structures may have an effect on the prognosis. In the present study, free-end cases in one or both arches were restored with implant and tooth-implant supported prosthesis and both treatment modalities were compared in terms of complications occurred after treatment. During a 14 years period (from 1990 to 2004), various implant systems were inserted and tooth-implant and implant supported prosthetic restorations were then evaluated.
A total of 210 partial edentulous patients were treated and 160 of these were posterior free-end patients. 105 of the restorations were implant supported (47 maxilla, 58 mandible) and 55 were tooth-

implant supported (17 maxilla, 38 mandible) prosthesis. 3 maxillary and 17 mandibular tooth-implant supported prosthesis were applied with nonrigid connectors and superstructures were screw retained. 14 maxillary and 21 mandibular prostheses were rigid connected and cement retained. The clinical evaluation was made according to the periimplantal soft tissue condition, bone resorbtion and superstructure complications.
It was observed that periimplantal soft tissue problems did not show any difference related to the superstructure varieties. Bone resorbtion was significantly lower in implant supported prostheses. 342 implants were inserted in both cases. 6 implants were lost in this period and 5 of these were tooth-implant supported prosthesis abutment and 1 implant lost supporting a implant–implant fixed bridge prostheses abutment. Using nonrigid connectors in tooth-implant supported prosthesis caused problems on soft tissue under the bridge. Furthermore screw loosening and decementation of the bridges over natural tooth were the common observed complications in conjunction with nonrigid connectors.

O 07
The long term evaluation of complications that can be encountered in implant prosthetic reconstructions
MK Ünsal, AE Ersoy, H Te rzioglu, G Yildirim
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The use of dental implants to rehabilitate tooth loss is a widely recognized therapeutic model. Multi centered long term studies proved the dependability of this treatment method.
However the chances of encountering various complications is always a possibility if necessary conditions are not met. These can either be related to the surgical or prosthetic phases. The complications of prosthetic phase can further be classified as biologic, mechanical and esthetic.
The purpose of the restorative dentist is to offer a long term problem free restoration to his or her patient. This can only be achieved if scientifically proven prosthetic treatment protocols are followed.
The modifications in implant design and the use of advanced surgical techniques that took place within the years have dramatically reduced the esthetic and mechanical complications recently by allowing a prosthetically driven implant localization. However this study makes a classification of prosthetic complications and gives out tips in order to prevent such complications.
2194 implants of different systems are used in 13 years. Out of this 2194 implants, 29 are lost after loading. The most pronounced complications seen were loosening or breaking of the occlusal screw, peri-implantitis, de-cementation and problems related to superstructure mechanics.

O 08
Occlusal factors of implant supported dentures
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Treating totally or partially edentuluous patients ith implant supported dentures fulfills the functional, esthetic, phonetic and psychological demands. Indication, presurgical prosthetic treatment planning and occlusal factors are the critical points for a successful implant therapy. For the longevity of the treatments masticatory forces should be evenly distributed. Therefore prosthetic guidance is important in the success of the implant therapy. Undisturbed function of the masticatory system relies on a physiological acclusion. In this study totally or partially edentuluous patients have been treated with implant supported dentures. Occlusal as well as functional, esthetic and phonetic factors were considered during the treatment. The patients have been recalled periodically and no failure was observed. Balanced force distribution and occlusal sheme are of vital importance for long term success of the implant prosthetics.

O 09
Magnetic resonance imaging in prosthetic reconstruction of maxillo-facial defects with dental implants
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Prosthetic reconstruction of maxillo-facial defects with dental implants is a method of choice in replacement of missing hard and soft orofacial tissues. Quantity and quality of adjacent anatomical structures is considered to be a limited factor in treatment planning, e.g. type and positions of dental implants supporting future epitheses.
Magnetic resonance imaging, highly sofisticated radiodiagnostic method has an exceptional role in the evaluation of bone structures and soft tissues, placement of dental implants and treatment control. Possible positive magnetic properties of all implants made of titanium material can cause artefacts on postoperative magnetic resonance scans. Magnetic resonance compatibility of different dental implant systems is described together with several case reports. Possible health risk for patients undergoing this examination with dental implants present is discussed.

O 10

Prosthetic rehabilition of patient with maxillofacial defect depend upon trauma

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Introduction: It is necessary for many dental disciplines, including prosthodontics, oral and maxillofacial surgery and endodontics to interact in the planning and treatment of patients who have severe maxillofacial trauma. Patients with this type often need complex prosthetic treatment. The options for a definitive treatment plan may include fixed, removable, or implant-supported prostheses, singly or in combination.
Aim of the presentation: This clinical presantation describes the prosthetic rehabilitation, after appropriate surgical options had been exhausted, of a patient with maxillary and mandibular defect.
Case description and the treatment carried out: The patient with maxillofacial defect was an 17 year-old woman. During her clinical and radiological examination we found out that, she had a oronasal opening which has a diameter of 2 cm and a facial asymmetry and deviation of the midline caused from the shortness of left mandibular ramus. Vertical distraction osteogenesis for reconstruct of hemimandible and horizontal distraction of a dentoalveolar segment for reconstruct oronasal opening was applied.The treatment included in the left maxilla two implant and tooth supported fixed partial denture and in the mandible implant supported removable partial dentures.
Patient progress: Lost function was achieved again with prosthetic treatment. But in order to achieve of lost aesthetic plastic surgery operationwill carry out.

O 11

Angulated implants in tuberosity region: A finite element analysis study

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Introduction: When an implant-retained prosthesis is considered in an edentulous maxillary arch, the anatomy and the quality of bone limit the usage of osseointegrated implants and necessitates advanced surgical procedures. The use of tuberosity implants is a new concept used to overcome the problem of insufficient bone volume by avoiding any advanced surgical procedure.
Aim of the study: To examine in-vitro the magnitude and character of the loads acting on the tilted implants in the tuberosity region.
Materials and Method: An anatomical three-dimensional (3D) finite element (FE) model of an atrophied maxilla was constructed and the 3-dimensional finite element-processing program ANSYS version 6.1 was used to calculate the stress and strains. The implants were modelled in the maxilla in "spread-out" configuration. Three implants were placed symmetrically in the lateral incisor, second premolar and tuber regions. The implants in the tuber region were tilted with different angles to the occlusal plane (20°, 25°, 30°, 35°, 40°) and connected with a U-shaped bar. A vertical load of 100 N was applied in the regions of 013, 015, and 017 symmetrically. An oblique load of 100 N was applied in the region of 016 inclined posteriorly 15°, 30° , 45° relative to implant axis, and 15°, 30°, 45° away from the sagittal plane.
Results: In all models regardless of implant inclination, the highest stress peak points were chiefly observed in the cervical area mesial to the implant surface, spreading in a mesial-palatinal direction. The value of tensile and compressive stresses around the tilted implants due to horizontal and vertical loads were within normal limits. The magnitude of tensile stresses and von Mises' equivalent stresses decreased as the implant inclination increased. The oblique loads were better tolerated by the implants than the vertical loads.

Conclusion: According to the results of this study the tuberosity area can be used for implant placement.

O 12

A multicentre study on effectiveness of a denture adhesive

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A denture adhesive bonds a denture and the underlying tissues via physical and non-covalent chemical interactions over a certain period of time. The purpose of denture adhesives is to subjectively benefit denture-wearers with improved fit and comfort of their dentures and with improved chewing ability and confidence.
It was the purpose of the present study to determine objectively the effectiveness of a denture adhesive in improving the retention of maxillary dentures. Participants were 88 patients, who were treated with new maxillary complete dentures at four dental clinics. In the mandible they had a stable natural dentition or prosthetic appliance, e.g. an overdenture attached on natural or implant abutments, a partial natural dentition with a stable partial chromcobalt denture, etc. Denture adhesive used was Kukident®. Disposable gnathometers were used to measure the maximum bite force of the patients' maxillary dentures. Pilot studies had been conducted in order to test the intra- and inter-examiner reliability of the disposable gnathometers. The intra-
as well as the inter-examiner reliability were very good. The disposable gnathometer measures maximum bite force using a scale ranking from 1 to 10 by registration of the pressure which a patient can apply to the front teeth until dorsally dislodgement of the maxillary denture. During one of the treatment sessions, the maximum bite force of the old maxillary denture without and with adhesive was measured. About two weeks post delivery of the new denture, when the patient was problem free at least, the maximum bite force of the new maxillary denture was measured following the same procedure. For old as well as new dentures the maximum bite force increased significantly when the denture adhesive was used ($p<0,05$). The effectiveness of the adhesive was significantly more pronounced in old dentures, when compared with new dentures ($p<0,05$).

O 13

Multidisciplinary therapy of permanent teeth agenesis

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Introduction: The incidence of permanent teeth agenesis in the Czech Republic is 3.28% in men and 3.86% in women - namely third molars 25%; lower second premolars 2-5%; upper second premolars 1.5 – 2%; upper lateral incisors 1- 3%; lower incisors 1%.
Aim of study: The goal of contribution was to analyze systematically patients with permanent teeth agenesis which were treated orthodontically; surgically (implant insertion) and prosthodontically.
Materials and Method: The study focused on the indication of prosthodontic treatment using new trends in this field; esthetic appearance and motivation to therapy, reconstruction of occlusion, prosthetic reconstruction, bone reconstruction, therapy speed and stability of results. Based on ADA recommendations, a special card was prepared which contained relevant information on the patients, including personal and health history, the type of tooth, the type and location of the restoration, the type of orthodontic therapy, the patient's sensation, the material used and photo documentation. Veneers, crowns, implants, adhesive bridges and fixed appliance were a valuable means of improving the appearance of missing teeth. The multidisciplinary therapy included: orthodontic treatment compromising distribution space followed by application veneers, crowns or adhesive bridges; surgical implant intervention and ceramic or metalceramic crown insertion; fixed appliance adaptation.
Results: The case reports were demonstrated the results of therapy. Plastic versus ceramic materials were compared as a method of choice, age of treatment was discussed, esthetic appearance of smile was evaluated, symmetry or asymmetry of dental arch and its influence on occlusal shape were observed. Implant age depended on bone grow termination. Immediate loading was a method of choice.
Conclusion: This contribution reviews the rationale and principles of agenesis treatment. Prosthetic treatment needs individual approach to the patient rehabilitation.

O 14

An analysis of maxillary anterior teeth: Facial and dental proportions

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Introduction: Recent studies have reported that racial and/or gender differences existed in correlations defined for better facial and dental appearance.
Aim of the study: The purpose of this study was to analyze the clinical crown dimensions of maxillary anterior teeth in a group of Turkish population with respect to (1) width and height, (2) width/height ratios, (3) gender, (4) successive widths of the maxillary anterior teeth in terms of golden proportion. Some of the previously stated facial and dental correlations related with the width and height of the anterior maxillary teeth were also questioned.
Materials and Method: The sample consisted of a hundred dentate Turkish subjects (50 females, 50 males; mean age 21.46 years) free from facial and dental deformities. Full-face images from two frontal views (at rest and at maximum smiling position) and anterior tooth images (at maximum smiling position) of the subjects were recorded by digital photography in standardized conditions. Stone casts of maxillary arches of the subjects were also made. Mean dimensions, width/height ratios, the difference between actual and perceived sizes, proportional relationships between teeth and gender variations were statistically analyzed. The facial correlations evaluated were: trichion-menton distance/central incisor height, interzygomatic distance/central incisor width, interpupillary distance/central incisor width, distance between the cusp tips of the canines/nasal base width.
Results: Significant differences were found between genders for the crown width/height ratios. The ratio between the actual and perceived widths of the anterior teeth decreased toward the canines. Values approximating golden proportion were calculated for successive teeth. Some of the correlations tested seemed to be reliable in defining the dimensions of anterior teeth.
Conclusion: Most of the dental and facial proportions evaluated might be considered as initial criteria in designing anterior esthetic for Turkish population.

O 15

An assessment of the oral health knowledge and recall after a dental talk amongst nurses working with elderly patients: A pilot study

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Objective: To assess the oral health knowledge amongst nurses working with elderly people in a local hospital before and after a dental training talk.
Method: Nursing staff working at Swanage Cottage Hospital completed a questionnaire designed to assess their knowledge of dental decay, periodontal disease, oral hygiene, denture care and palliative care. One month after receiving a dental talk, the questionnaire was redistributed to the participants. A t-test was used to compare the number of correct answers before and after the talk.
Results: Twenty members of the nursing staff completed the initial questionnaire and fourteen completed it one month after the talk. Prior to the talk, out of the 45 questions, the mean number of correct answers per member of staff was 23.95±3.83. One month after the talk this had risen to 34.9±3.83. This increase was statistically significant ($p<0.0001$).
Conclusion: A dental talk to a group of nursing staff caring for elderly people in a local hospital produced a 25% increase in the number of correct answers.

O 16

Tooth wear: Diagnosis and treatment strategies for prosthodontic rehabilitation

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Tooth wear is often observed in dentate and partially edentulous patients. Attrition and abrasion are caused by bruxism and other parafunctions of the patients. It may also be combined with an erosive component. Loss of posterior teeth lead in partially dentate patients to a protruded position of the mandible with subsequent increased wear of anterior teeth. Therefore a careful diagnosis, intraoral examination, mounted casts and a provisional phase prior to treatment are necessary.
The first step consists of a clinical diagnosis which includes: functional disturbances of muscles and joint (MAP), stress factors, food intake and general habits of the patients. The oral examination focuses on intermaxillary relations, occlusal contact situation, border of keratinized gingiva.

The second step consists of a provisional phase which includes: analysis of mounted casts, establishing of correct vertical dimension of occlusion, correction of the position of the mandible and stable occlusal contacts. This can be achieved by means of splints and provisional prostheses.
The third step consists of a final prosthetic reconstruction of the patients. Considerations regarding the type of prosthesis include: fixed versus removable, selection of abutment teeth, placement of implants, choice of materials, esthetics and function and costs.
The fourth step consists of a well-organized maintenance service. It is important for many patients that they wear a nightguard.

O 17
Study on dental aesthetic conciousness
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Aesthetic dentistry plays a more important role to day in advertising and dental education than ever before. The aim of this study was to determine the aesthetic consciousness of the dental professions and non-dental professions, with a total of 204 subjects. The patients were classified into six groups according to their different previous dental knowledge and age.
They were asked to arrange according to their subjective aesthetical sensations maxillary models with different teeth arrangements and with posterior tooth forms. The same task had to be carried out using only photos of the same maxillary models. The following conclusions were drawn from the results: The majority of the interviewees found it easier to decide from the three-dimensional models than to decide from two-dimensional photos. There is dependency between the aesthetical awareness of the patients and the level of previous dental knowledge. Furthermore the age of the interviewee has no important effect on the aesthetical sensation. Form, color and assignment of their own anterior teeth have no effect on their aesthetic consciousness.

O 18
Laser vs handpiece for tooth preparations
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Tooth preparations for full coverage restorations are currently performed by rotary instruments which might compromise the maintenance of tooth structures. Lasers have a wide range of dental soft and hard tissue applications that are believed to causeless complications. The aim of this study was to investigate the possibility of full coverage tooth preparations by lasers and compare the preparation durations. 20 freshly extracted human teeth, free from caries and restorations were divided into two groups (n=10/group) and embedded in self-curing acrylic resin. The teeth in the first group were prepared with laser (Er: YAG laser wavelength: 2940 nm, Fotona, Slovenia) while the specimens in the other group were prepared by rotary instruments. The durations of the preparations were recorded (handpiece: 20 min., laser:
33 min.) and statistically evaluated (ANOVA). The results revealed that the laser prepared group required longer time when compared with the handpiece prepared group. It was concluded that dental lasers offer an alternative to handpieces but should be further developed to consume less time for tooth preparations.

O 19
Clinical performance of combined resin-bonded fixed partial dentures: 3 year follow-up
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The use of resin-bonded fixed partial dentures has become widely accepted as a routine procedure in restorative dentistry. The aim of this study was to evaluate the clinical performance of combined and all-resin-bonded metal ceramic restorations.
A total of 89 patients received 126 units of fixed partial dentures(FPD) made of non-precious alloys at senior year dental students prosthodontic clinic of Ege University Faculty of Dentistry. Sixty six combined resin bonded FPDs, 48 resin bonded FPDs and 12 inlay-retained FPDs were assessed. In all combined FPDs, at least one of the abutments were partially prepared for adhesive bonding.

Modified USPHS criteria for all types of FPDs were recorded at baseline at month 6, years 1, 2 and 3 for all of the patients included in the study. The obtained data were statistically analyzed by Friedman and Wilcoxon signed rank tests and Chi-square tests. Over a 3-year period, 91% of the inlay-retained restorations, 82% of combined adhesive FPDs and 71.5% of the adhesive FPDs were acceptable and received
either A or B scores. The main types of failure included debonding, crack formation, secondary caries and gingival recession while occlusal stresses, non-retentive FPD design, resin cement failure as well as patient related trauma were the most frequent failure reasons. Combined resin-bonded FPDs proved to be successful in 3 years and complete tooth preparation is not always necessary when fabricating long-span FPDs. Clinical experience is the major factor for long-term success of resin-retained FPDs.

O 20
Stress concentration in fiber reinforced composite fixed partial dentures
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Introduction: Fiber reinforced composite materials have become an alternative to conventional metal-ceramic materials in fixed partial dentures (bridges). There are little information about these materials and their stress distribution in 3 and 4 units bridges.
Aim of the study: To simulate the stress distribution at the surface and interface of fiber reinforced composite (Targis-Vectris) 3 and 4 units posterior bridges, and to compare the amount of displacement, occured under vertical and oblique forces, using 2-dimensional finite element stress analysis.
Materials and Method: Two mesio-distal cross-section models of 3 and 4 units posterior bridges and supporting tissue were prepared and digitized.
A simulated 100 N vertical and 450 N oblique occlusal loads were applied to the central fossa of the pontic elements. The maximum and minimum principal stresses within the bridges and supporting tissue were calculated in MPa, and the amount of displacements were calculated in mm from the post processing files and compared each other.
Results: In 3 units bridge, a compressive area at the occlusal portion and a tensile area at the gingival portion of the pontic were found. Also, the tensile stress peaks were found in the abutment/pontic connection areas. In 4 units bridge, except the stress areas found in 3 unit bridge, there was a tensile stress peak at the interface of the two pontics. In addition, at the interface of the two material (Targis and Vectris), tensile stress areas were determined in 3 and 4 units bridges. The amount of displacement of 4 units bridge was greater than 3 units bridge.
Conclusion: The tensile stress values of 3 and 4 units bridges were found close and according to this result fiber reinforced composite materials seemed to be convenient for 4 units bridges. The displacement amount was increased directly with the length of the bridges.

O 21
Metal-ceramics 8-15 years post insertion – Retrospective study
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Introduction: Metal-ceramic crowns are the world wide standard for tooth colored full crowns. Forty years of evolution (US patent 1962) have resulted in a crown being stable treatment in the whole dental arch. The retrospective studies have shown excellent fit, durability, and longevity. However, there are some problems that need consideration, such as wear of the opposing dentition, wear or breakage of porcelain with exposure or possible exposure of underlying metal, need for excellent lab skills to produce life-like esthetics.
Aim of the study: The aim of the study was to evaluate the quality of metal-ceramic reconstruction 8-15 years after insertion in the oral cavity.
Materials and Method: 109 crowns were placed in 43 patients (24 women and 19 men). Materials used for construction of these crowns were nickel alloy (Wiron, Bego) for cast metal framework and low fusing feldspatic ceramic material (Vita Omega, Vita). Clinical evaluation was based on the US Public Health Service System criteria. Photo documentation and special questionnaire were parts of the study. The main interest was concerned on the mechanical resistance of the crown surface, marginal adaptation, color and gingival health.
Results : After 8– 15 years period the crowns were found clinically intact in 71% for metal-ceramics. Five crowns were lost. Crown margin placement was in 28% paramarginal, 35% supragingival and 37% subgingival position. Gingival health was related optimal in 55%. Slight mismatch in color

occurred in 10% crowns, excellent in 87%.
Conclusion: It was found that examined metal-ceramic crowns are very stable fixed restorations. Ceramic veneering was excellent in color match.

O 22
3DFAE stress distribution analysis of metal-ceramic crown under occlusal load
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Introduction: Metal-ceramic crown fracture is still a significant clinical problem. Design and material properties improvement implies understanding the stress distribution within the crown structure, and the crown interaction with tooth and its supporting structures during occlusal loading. The 3D FEA has shown to be representative in investigating the biomechanics of complex structures.
Aim of the study: The objective was to create a 3D model of a metal-ceramic crown on an upper first premolar with its supporting structures, and to investigate aspects of its biomechanics under different loading conditions.
Material and Method: Definitions of geometry and volume for all particular segments of tooth morphology were derived from digitalized upper right first premolar cross-sections. The metal-ceramic crown was designed on a shoulder type margin. The FEA was performed with NASTRAN (MacNeal-Schwendler Corp, USA). Materials' mechanical properties were acquired from average values of the literature. The final model consisted of 1.684,512 four-nodded tetrahedral elements, 246,510 nodes with a total of 739,530 degrees of freedom. Boundary conditions were fixed on the outermost layer of the alveolar bone. Single to tripodal contact accumulative static load values of 200N were applied occlusally.
Results: The greatest stress concentration was observed within the palatal part of the ceramics (-30.00 MPa) and the metal core (-28.44 MPa). Significant compressive stress values were concentrated within ceramics at the palatal cervical crown margin (-23.75 MPa).
Conclusions: Greatest stresses induced during occlusal load involve both metal and ceramics. The 3D FEA of stress distribution explains mechanics involved in typical clinical fractures of metal-ceramic crowns.

O 23
Tooth color determination by using digital imaging
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Introduction: The problems regarding the accordance of color with the natural dentition of the patient in dental prosthetic treatments gain more importance as esthetic appearance play a major role in today's life. The methods employed for the determination of the most accurate color compatible with the natural dentition of the patient in prosthetic restorations are completely dependant on the perceptive and logical capacities of the dentists and therefore no objective solution could have been found for these problems up to date.
Material and Method: In the first part of the study the color of the 30 extracted upper incisive teeth were determined using the spectrophotometric color analysis method which serves to measure and analyze colors quantitatively in color science. In the experimental part of the study four observers determined the colors of the 30 extracted teeth under 3 different illumination conditions using their perceptive capacities according to the Vita Lumin color scale. The quantitative results of the same teeth were also recorded using 2 digital cameras of different resolution. The results obtained using the both methods were compared with the spectrophotometric color analysis results and the statistically success rates were found.
Result: The highest success rate was found with the Minolta Dimage 7i among the digital cameras used in this study, with the percentage of 60% when compared to the spectrophotometric color analysis method results. A distinct lack of harmony was present in the results of the observers' recorded at different illumination conditions and at different testing times.

O 24

Conventional and ultrasonic adaptation of resin composites in ultraconservative preparations

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Objectives: This laboratory study aimed to investigate the adaptation of a resin composite in ultraconservative proximal preparations using conventional and ultrasonic placement techniques.
Materials and Methods: Twenty sound premolars of similar size were utilized. Standardised ultraconservative proximal slot-type preparations were completed mesially in each tooth using an ultrasonic technique (SONICflex, KaVo, Germany). Teeth were restored with Z250 (3M ESPE, St. Paul, MN, USA) resin composite using either a conventional hand placement technique or a specially prepared Teflon coated application tips in ultrasonic handpiece (SONICflex LUX 2003L, KaVo, Germany) operating at the low frequency setting. The marginal adaptation of the restorations was assessed (X6.5-40) by a stereomicroscope (S Wild M3Z, Heerbrugg Ltd, Switzerland). The teeth were embedded in epoxy resin and sectioned axially. Specimens immersed in a 0.5% basic fuchsin for 60s, rinsed, dried and examined (X10) by a stereomicroscope. Digital micrographs were transferred to a computer for image analysis using SigmaScan Pro 5.0. The restoration surface was examined and the percentage restoration area occupied by voids (RAOV), total number of voids (TNV), and number of small (NSV) and large voids (NLV) were calculated. Data obtained were analyzed by ANOVA.
Results: Significant differences were found in relation to RAOV, TNT, NSV, and NLV between the two placement techniques ($p<0.001$). All ultrasonically adapted restorations included marginal and surface defects comprising white areas, large and small voids at the occlusal and proximal restoration surfaces, and overfilled margins. However, only overfilled margins were observed with the hand placed restorations but the type of overhang varied.
Conclusion: The ultrasonic technique investigated is unsuitable for the placement and adaptation of resin composite materials in ultraconservative preparations.

O 25

Effect of air-pressure of cojet on bond strength to ceramics

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Introduction: The high-purity Aluminium-trioxide and Zirconium-dioxide ceramics are inert to conventional etching and therefore it is important to evaluate methods to achieve a durable bond between ceramics and composites.
Aim of the study was to evaluate the effect of air pressure of tribochemical silica-coating system (CoJet, 3M-ESPE) on shear bond strength of composite resin (Z250, 3M-ESPE) to Aluminium-trioxide (Procera AllCeram, Nobel Biocare) or Zirconium-dioxide (LAVA, 3M-ESPE).
Materials and Methods: The AllCeram and LAVA substrates were particle-silica-coated by using air pressures of 150, 220, 300 and 450 kPa. The surface was silanized with a silane coupling agent (EspeSil, 3M-ESPE) and coated with adhesive resin (3M Multipurpose resin, 3M-ESPE). Composite resin (Z250, 3M-ESPE) adherend (diameter 3.6mm, height 4.0mm) was added to the substrate and light cured for 40 seconds (Optilux-501, Kerr, USA). The specimens (n=18/group) were thermocycled (6000x55º-5ºC). The shear bond strengths of composite to ceramics were measured with a crosshead speed of 1.0mm/min. Fracture surfaces were examined with SEM and an element analysis (EDS) for determine silica content on the substrate surface was evaluated.
Results: The results of shear bond strengths analysed with Weibull values (m=Weibull modulus, ?=characteristic strength (MPa), correlation coefficient) and EDS analysis are shown in below:

	LAVA				Procera AllCeram			
Pressure, kPa	m	?	?	SiO_2 (wt%)	m	?	?	SiO_2 (wt%)
150	2.64	12.61	0.94	6.60 (0.20)	2.35	18.37	0.91	6.63 (0.25)
220	3.98	13.39	0.98	6.52 (0.47)	3.00	15.56	0.95	6.52 (0.47)
300	4.92	17.13	0.87	6.64 (0.78)	3.31	27.09	0.97	8.19 (0.67)
450	3.11	18.61	0.97	5.80 (0.42)	3.00	30.49	0.98	10.82 (0.40)

ANOVA showed significant difference both to bond strength between two ceramics ($p<0.05$) and to the effect of pressure to bond strength ($p<0.05$).

Conclusion: More reliable shear bond strength was obtained with CoJet air-particle silica coating to AllCeram and LAVA when the air pressure was increased.

O 26

Effect of crosslinking monomer on polymerization of powder/liquid-system denture base resin

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Aim of study: This study investigated polymerization reaction of autopolymerizing denture base polymer with four different crosslinking methacrylate monomers at room temperature.
Materials and Methods: Four crosslinking dimethacrylate was used: ethylene glycol dimethacrylate (Sigma-Aldrich), bisfenol-A-glysidyl dimethacrylate (Röhm), DD1 dendrimer-like hyperbranched methacrylates (Dynea Chemicals) and H20-hyperbranched methacrylate (Boltorn). Crosslinking monomer was added to methylmethacrylate (MMA) monomer with quantities of 1.1, 2.3, 4.6, 6.9 and 9.1 volume percentage (vol%) of total amount of the MMA liquid. Polymethylmethacrylate (PMMA) (Sigma-Aldrich) powder / MMA liquid mixing ratio was 10g/7ml. Benzoyl-peroxide and NN-dimethyl toluidine was used as a initiator/activator system. the mixture was inserted into cylindrical moulds. The bottom of the cylinder was fixed on a FTIR/ATR (Fourier Transform Infrared spectroscopy/Attenuated Total Reflectance) (Spectrum One, Perkin Elmer) sample accessory and polymerisation spectra was monitored each 6 s. Degree of conversion (DC%) was calculated from the aliphatic C=C peak at 1638 cm^{-1}, normalised against the carbonyl C=O peak at 1720 cm^{-1}: DC%=(1-C/U)x100%, where C=absorption peak of the cured specimen, where U=absorption peak of the uncured specimen.
Results: Time points (min), when autopolymerization was started with different crosslinking monomer quantities.

Groups	9.1vol%	6.9vol%	4.6vol%	2.3vol%	1.1vol%
BisGMA	14 min	17 min	20 min	29 min	31 min
EGDMA	13 min	14 min	19 min	21 min	28 min
DD1	9 min	14 min	17 min	24 min	28 min
H20	9 min	12 min	17 min	28 min	34 min

Conclusion: The results of this study suggest that the type of crosslinking monomer is effecting the polymerization reaction. By using hyberbranched methacrylates, the doughing time can be adjusted in larger scale than with dimethacrylate monomers.

O 27

Shear bond strength of resin composite to casting alloys

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Introduction: Several methods are available for bonding resin composite to dental casting alloys.
Aim of the study: The purpose of this study was to evaluate the surface treatment effects on bonding between a resin composite and casting alloys.
Materials and Method: In this study electrolytic etching and electroerosion technique were tested on Co-Cr and Cr-Ni alloys. 30 disk specimens, 1.8 mm thick and 10 mm in diameter were casted for each alloy. After casting, disks were subjected to 3 different surface treatments: (1) cast surface treated sandblasted and electrolytic etching, (2) cast surface treated sandblasted and electroerosion, (3) cast surface only sandblasted. A resin composite (Chemiace II) was placed onto the treated metal surface and light polymerized. Specimens
were stored in distilled water for 24 h. Shear bond strength tests were performed with a universal testing machine until fracture. Statistical analysis of the results was carried out with Two way ANOVA, Kruskall Wallis and Bonferonni adjusted Mann Whitney U.
Results: While no statistical difference was found between two casting alloys ($p>0.003$), the difference among the surface treatments was found to be significant ($p<0.003$). Comparison among surface treatments showed that the electrolytic etching and electroerosion had a significantly higher mean than the only sandblasted group. But there was no significant difference between the electrolytic etching and electroerosion.

Conclusion: Electrolytic etching and electroerosion surface treatments significantly improved the shear bond strengths of resin composite to casting alloys.

O 28

Effects of sandblasting variables on the bond strength of resin-to-alloys

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Introduction : Although sandblasting treatment is widely used to achieve micro-mechanical retention, the way of application of this method shows differences in current studies.
The aim of this study: To evaluate the effects of sandblasting with Al_2O_3 in different particle sizes, periods, pressures and pplication distances, on the bond strength between adhesive resin cement and two base metal alloys.
Materials and Method: A total of 288 wax discs 2 mm thick and 10 mm in diameter were casted in Wiron 99 and Bellabond N base metal alloys. 50 and 110 µm Al_2O_3 particles, 4, 5 and 6 bar pressures, application distance of 5 mm and 10 mm, a period of 10 and 20 seconds were used for sandblasting. Metal discs were divided into 48 groups each consisting of 6 samples. To obtain homogenously sandblasted metal surfaces and prevent the risks appearing by manual application, a special device was used with sandblasting machine. Shear bond strengths were determined with a universal testing machine after hermocycling. The outcoming data were statistically analyzed with Kormogorov-Smirnow and Student t tests. Scanning electron microscope images of the selected samples were acquired after surface treatment.
Results: When sandblasting period and distance were increased, the bond strength showed high values. Bellabond N had more high bond strength values than Wiron 99 had ($p<0,001$). The highest shear bond strength for both alloys were obtained with 50 and 110 µm Al_2O_3 under 5 bar pressure at 10 mm distance in 20 seconds ($p<0,001$). Sandblasting with 110 µm Al_2O_3 showed higher bond strength values than with 50 µm Al_2O_3 showed ($p<0,001$).
Conclusion: Different applications of sandblasting treatment effect the alloy surface roughness and the bond strength of adhesive resins to alloys. Therefore to achive high bond strength, the most effective variables have to be used alltogether.

O 29

Evaluation of base metal alloy bond strength to different restorative materials with adhesive resin

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Introduction: In resin-bonded bridge work, the retainers should ideally be bonded to etched enamel, but abutment teeth have caries lesions or restorations at the bonding side.
Aim of the study: The purpose of this study is to evaluate the frequently used surface treatment procedures applied to base metal alloy bond strength to enamel and various restorative materials with adhesive resin cement.
Materials and Method: Total 84 base metal alloy specimens were divided into two groups for surface treatment procedures, which were sandblasting and sandblasting +electro-etching. For groups of evaluation of bond strength to enamel, 14 non-carious extracted human central teeth were cut from their roots under water cooling and were then embedded in self-cured acrylic resin block with their labial surfaces exposed. The labial surfaces were flattened using 320, 400 and 600 grid silicon carbide paper. From each of five different restorative materials which were amalgam, conventional glass-ionomer cement, light cured glass-ionomer cement,
light cured composite resin and compomer, totally 70 specimens were prepared as 5 mm in diameter and 3 mm in thickness. Panavia F as adhesive resin cement was used. All the prepared specimens were stored in distilled water at 37 0C for 24 hours and were thermally cycled for 500 cycles at 55±10C and 5±10C with 20 seconds dwell time in each bath. Shear testing was performed on instron test machine using a cross-head speed of 0,5 mm/minute. After the mean value and standard deviation of all groups were calculated, the data were controlled with both one-way and two-way variance analyses. In multiple comparing of the means Tukey Multiple Comparison Test was used.
Results: Our study shows that sandblasting + electro-etching procedure reduced the bond strength regarding to sandblasting procedure. The results indicated that amalgam groups had the lowest bond strength when enamel and five different restorative materials were compared. Although conventional glass-ionomer groups had better bond strength statistically significant than amalgam groups, they had lower bond strength comparing with other restorative materials. Bond strength of light cured glass-ionomer cement was average among all groups. There was no statistically significance between

enamel and light cured composite resin groups and they had the second best bond strength in all groups. Compomer groups had the highest bond strength in all groups in our study.
Conclusion: Because of electro-etching procedure reduces the bond strength and application of this technique is difficult, sandblasting procedure should be choosen for resin bonded bridge-work. If abutment teeth have caries lesion at the bonding side, composite or compomer restorative materials, which exhibited high bond strength, should be choosen for treatment.

O 30

The comparison of two casting techniques on microleakage between alloy and veneering materials

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Some defficiencies occur in initial composition and microstructure of dental alloys due to the tecniques used for casting process. These defficiencies alter the surface conditions of alloys and this causes marginal microleakage destroying the retention of the esthetic material. Thus, the casting process is important for sensitivity.
Purpose of this study is to compare the sensitivity of two different casting tecniques (induction and centrifugal casting tecnique) examining the cervical microleakage. Base metal alloy used in this study (Royal N, Germany) was casted by induction and centrifugal tecnique. Half of 42 metallic copings were casted by induction (Ducaron, Serie 3, France) and the rest by centrifugal tecnique (Microtek, Degussa, Germany) from wax patterns which were fabricated on a master cast abutment which had a chamfer cervical collar. Copings were veneered with porcelain (Vita Omega 900, Germany), composite (Major, Italy) and acrylic resin (Bioplus, Biodent, Dentsply, Germany). Conditioning systems were chosen according to the manufacturers. After veneering procedure, the specimens were stored in distilled water at 37°C, 2000 cycles at 5-55°C and 24 hours in 0,5% basic fuchsine. Specimens were sectioned with a precision cutter (Micracut, Metkon, Bursa, Turkey) along a perpendicular cervico-incisal plane through a point chosen in the middle of the cervical collar. Dye penetration in the cervical area was examined with stereo light microscope (Leica, MZ12, Heerburg, Switzerland) and scored by indicating the presence/absence of dye penetration by the examiners who were blinded to other examiners' data. Scores were compared and analyzed with the use of 1-way analysis of variance (ANOVA). Each specimen casted by induction demonstrated lowest microleakage scores than the samples casted by centrifugal tecnique. The differences were statistically significant. Sensitivity in casting process plays an important role on microleakage between alloy and the veneering material.

O 31

Prosthetic treatment of patient with sclerosis multiplex (sm)

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Introduction: The full-scale dental care of functionally dependent patients require special help because of poor general health status and reduced demands for any dental or prosthetic care, in addition to lack support services and generally poor social-economic circunstances. The main purpose of this case report to show the effect of denture treatment for quality of life.
Materials and Method: A 46 yers old female patient, who suffered from SM, was transported to our clinic on her general physician's advice. Intraoral and x-ray examinations discovered a neglected dental status with a great number of carious lesions and advanced periodontal disease. On base of these findings we had to decide the removal all remaining teeth. Six weeks after the surgery we started to make complete remobable denture by using conventional technique. During taking funcional impression we tried to extend borders of the custom trays as large as possible to increase the denture bearing mucosa. Functional adaptation along the posterior border of the upper tray a treater palatal seal helped us to increase the funcional stability of upper denture base. On the lower jaw an acceptalbe retention was obtained by utilising the tongue function with modeling compound. Taking into consideration functional and biomechanical principles in tooth positioning the occlusal plane was positioned close to the lower alveolar ridge, a bilateral balance and lingualised occlusion were performed. After polymerization of the denture base we used remontage technique to modify the balanced forced osslusion.
Discussion: The masticatory function of patient suffered from SM can be rehabilitated by using the conventional technique which takes into consideration particular biomechanical and psychosocial aspects. To achive an optimal prognosis the priorities should be determined in treatment planning.

O 32

Gingival convergence, path of insertion and retention force of RPD

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Introduction**:** The retention force of the cast clasps represents the complex function of the elastic force of the streched clasp, friction coefficient for the contact surfaces and the angle of the retentive surface in relation to the vertical.
Aim of the study was to compare the values between the mentioned angle, path of insertion, and their influence on retention force of the clasp.
Materials and Method: The measurement were performed "in vitro" condition.
N-was 60. The angle of gingival convergence was increased with inlays for 10°. Each cast model was titled for 10° on the surveying table, which changed path of insertion.
Results: Testing was made with ANOVA-two determinated variables models. We noticed that there was no significant interaction between two determinated variables, (F=0.21, p>0.65)>). F-test was larger than F-critical value $[H_0(\alpha_1 = \alpha_2] \neq |24.90| > |4.01$. We have rejected null hypothesis and we have approved hypothesis of the work, where the increase of angle of gingival convergence has significant influence in the retention capacity of the dentures (p< 6.2E-06). Testing criteria for failing to reject null hypothesis where changing the direction of path of insertion didn't have significant influence in retention capacity of the RPD (H_0: $\beta_1 = \beta_2$) was:$[H_0(\beta_1 = \beta_2)] = |F_B| \leq |F_{1-\alpha, b-1, (a-1)(b-1)}|$. F-test was larger than F-critical value $[H_0(\beta_1 = \beta_2] \neq |40.63| > |4.01|$, we rejected null hypothesis and we have approved hypothesis of work, where the direction of path of insertion has significant influence in retention force of the dentures (p<3.7E-08).
Conclusion: With the purpose to prove acquired results of statistical testing, we presented graphically the effect that angle of gingival convergence is one of more influenced factor in retention force, not considered from Ney et all.

O 33

Mobile dental prosthesis with dental load from the aspect of oral health

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According to the definition by WHO from the year of 2000, health is not only absence of disease and ability, but it is also a balance of the entire physical and mental health and social welfare. Oral health is a segment within general human health. Oral health represents health of mucous membrane and other tissues of stomatognatic system and existence of full natural or artificial tooth rows which provide maximum intercuspidation and physiological interjaw relation. These factors represent condition for functional integrity of stomatognatic system that is reflected in functions that tissues jointly carry out and they have a particular significance for maintaining health and functional capacity of the system.
The aim of this work was to assess oral health of the patients who wear cast partial prosthesis, dentally worn. Patients from the Clinic for Dental Prosthetics, Dental Faculty, Sarajevo University, participated in the research. These were the patients who had cast prosthesis with dental load made for patients of both sexes, their age ranging from 40 to 65 years were involved. Parameters of the research were appearance of cavity and changes on periodontium of the retention teeth and inflammatory changes on soft tissues of toothless area of alveoral reef. The patients were observed through control exams during the time period of 24 months.
The results showed that appropriate application of dental load when developing cast partial prosthesis also involves the aspect of cavity paradontal prophylaxis and provides for high level of oral health with the patients wearing cast partial prosthesis.

O 34

The prevalence of the occlusal disharmony of complete dentures

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One of the problems in the complete dentures is occlusal disharmony. This causes discomfort of patients and rapid bone resorption. There is not study about the prevalence of occlusal disharmony in the complete denture wearers after delivery, although many prosthodontists emphasize the importance of the clinical remount procedures for eliminating the occlusal errors. The aim of this study was to investigate the prevalence of the occlusal disharmony in complete dentures after delivery and

its associated causes.
The design of this study was cross-sectional and 52 complete dentures were mounted on the Hanau H2 articulator by recording and transferring the orientation and centric relations records. Centric relation was verified before analyzing to prevent misinterpretation. The occlusal disharmony is defined as the absence of the simultaneous bilateral contacts of the posterior teeth in the centric relation. The occlusion of the complete dentures was analyzed by articulating paper qualititavely. The frequency of the occlusal disharmony was determined and the role of the gender, the amount of bone loss, skeletal relationships, occlusal schemes and clinical remounting studied by Chi-square and Fischer exact test statistically.
In 52 patients, 28.8% had occlusal disharmony. There was not the association between occlusal disharmony and the gender, the amount of bone resorption, skeletal relationships and occlusal schemes ($p<0.5$) but the complete dentures with occlusal disharmony in 93.4% was facing with the absence of the clinical remounting ($p<.0001$ & O.R=34).
The occlusal disharmony in complete denture wearers is noticeable and concerned, and the most important associated factor is the absence of the clinical remounting. It is strongly recommended a study at higher level (randomized clinical trial) be done for comparing the effect of the clinical remounting on the occlusal disharmony.

O 35
Blood flow changes in abutment teeth of removable partial dentures
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Introduction: The reliability of laser Doppler flowmetry in the assessment of pulpal blood flow is well known. This study determined the blood flow in abutment teeth of different partial edentulous cases.
Purpose: The aim of this study was to investigate the effects of different retainers' on the blood flow of abutment teeth in tissue supported and tooth supported removable partial dentures by using laser Doppler flowmeter.
Methods: Measurements were carried out on 60 healthy abutment teeth of removable partial denture wearers who had no systemic problems and were non smokers. A laser Doppler flowmeter was used to record relative blood flow. A silicone putty splint of the related arch were made to stabilize the probe on abutment teeth. Changes of blood flow were recorded prior to; and 1,30 days after delivery.
Results: The blood flow in tissue supported dentures was significantly different from the tooth supported dentures.The blood flow decreased in the abutment teeth of tissue supported denture and increased in the abutment teeth of tooth supported denture. We considered that the blood flow may vary according to the type of the retainers.
Comparisons between the overall mean blood flows recorded under each conditions were made using covarience analyses of repeated measurements.
Conclusion: Since the results were limited in 1 days and 30 days we are planning to carry out the second part of this study in the long term period.

O 36
Effect of construction stages of complete dentures on dimensionel stability of denture base
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In the literature according to the different stages for finishing complete dentures, dimensional changes expected in the acrylic base materials. The aim of this study was to investigate the dimensional changes in the different stages; try-in stage, flasking, polishing and storing in the water for one month. Eight upper complete dentures were prepared on the cast models which were duplicated from the master model. As a base material polymethyl methacrylate (Meliodent, Bayer, Germany) was used. Dowels which were placed as a reference points on the artificial teeth (Akgün, Turkey) were used for measuring. Selected points were; central fossas of the first molar and premolar, the cingulum of the right central incisor. Measurements made at try-in stage were used as a control group for dimensional changes. The digital caliper was used for measurements (Mitutoyo, Germany). Results were made by three different dentists. Results were statistically evaluated with the 't' test. According to the statistical analysis there was a difference between try-in stage group and flasking, polishing groups ($p<0.05$). The region between the central incisor and premolar teeth were much more effected from the dimensional change instead of the region which is between the central incisor and the molar teeth. Statistically there was also dimensional change between the regions after storing the samples in the water for one month ($p<0.05$). From these results it was shown that construction stages of complete

denture are very important on the stability of denture base but storing the denture in the water can tolerate these changes.

O 37

Implant supported overdentures: A clinical report

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An overdenture may be defined as a removable prosthesis that covers the entire occlusal surface of a root or implant. For thesuccess of the implant supported overdenture therapy, functional loads must be optimally distributed to the mucosa and abutments. The aim of the presentation is to describe a functional impression procedure for fabrication of a mandibular
implant supported overdenture. A 50 years old woman was referred to the prosthodontics clinic. The retention problem of the mandibular denture was due to the resorption of the alveolar ridges. 2 implants with O-ring attachments were placed in the interforaminal region. Preliminary impressions were taken and custom acrylic trays were prepared for the fabrication of the dentures. Mandibular custom acrylic tray was prepared with minimal relief and without perforations to record the alveolar mucosa in functional state; only openings in the implants region were prepared for the impression of the attachments. Impression of the alveolar mucosa was taken with impression paste under firm finger pressure, the impression of the
O-ring abutments were taken by injecting low viscosity polyvinilsiloxane impression material through the openings, by this procedure a functional impression of the mandible was taken. For the impression of the maxillary complete denture conventional procedures were followed. After conventional occlusal registration procedures, the dentures were finished. An examination glove was cut in pieces to be placed between the O-ring abutments and metal housings; this procedure was applied to eliminate the undercut areas between the O-rings and the metal housings. Mandibular overdenture was finished with openings in the O-rings region and metal housings were incorporated in the denture design by the use of autopolymerising acrylic resin.

O 38

Effect of surface roughness on bacterial adhesion of composite resins

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Bacterial adhesion to composite resins is influenced by the surface roughness. The purpose of this study is to evaluate the effect of surface roughness on the bacterial adhesion of different composite resin surface treatments. Two different composite resins Esthet-X (Dentsply), Charisma (Kulzer) were used in this study. 30 discs of each composite resin with a diameter of 5mm and 2mm thickness were fabricated according to the manufacturer's instructions in a teflon mold and stored in distilled water at 37c for 24 hours. One group was used as control. The second group is finished composite finishing diamond bur, and the third group was polished with Sof-lex discs (3M Dental Products). The surface roughness was measured by a profilometer. The specimens were incubated in a suspension of streptococcus mutans allowing an initial adherence to occur. Bacterial adhesion was studied. The results were statistically analyzed. The surface roughness influenced the bacterial colonization on the different composite resin surfaces.

O 39

Ion release from various casting alloys into tissue and urine

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Introduction: Instability of semi-precious and non-precious alloys results in release of ions that are toxic to the tissue and some tissue reactions may be seen secondary to the ion release from these materials.
Aim of the study: The aim of this study was to investigate the biocompatibility of Co-Cr and Cr-Ni base metal alloys and to examine the transmission of the ions to urine and their possible effects on oral mucosa.
Materials and Method: For each group, two different brands of Cr-Ni (Remanium CS and Heranium NA), Cr-Co (Heranium CE and Tener-it) and gold (Hera GG and Heraloy G) alloys were tested on 68 rabbits with using subcutaneous implantation technique. The amount of the ions in urine was

measured before the implantation and at 2nd, 14th and 90th days after the implantation with using the atomic absorption spectrometry technique.
Results: Values of Cr and Mo found significantly different in all four groups that contained these elements. Cr values of 2nd day were found significantly different among the other groups. Mo ion values that passed to urine were found significant in all groups at 2nd, 14th, 90th days. Cr-Ni, Cr-Co alloys cause more tissue reactions in the connective tissue than gold alloys.
Conclusion: The results revealed that the ions released from the base metal alloys. Especially, with statistically significant quantities of Cr and Mo was transmitted to urine and tissues. Ion release was not observed from gold alloys.

O 40

Reinforcement of poly-methylmethacrylate with plasma treated glass fibres

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Introduction: Poly-methyl metacrylate (PMMA) is widely used for the construction of dentures. This material has relatively poor mechanical properties. Even though improvement in their mechanical properties through the addition of glass fibres have been reported, some studies reported conflicting results. The interfacial bond between the fibers and the PMMA matrix is one of the dominating factors that affect the mechanical properties of the reinforced resin. Plasma treatment of the fibres with various monomers can be used for the improvement of this bond.
Aim of the study: The study evaluates the effect of plasma treated E glass fibres (BMC3, Camelyaf) addition on the mechanical properties of acrylic resin denture base material (QC20, Dentsply).
Materials and Method: Different monomers; HEMA, TDGME, EDA were used for the treatment. Except untreated group, fibres were coated in glow-discharge reactor for 30 min with 25 Watt of discharge power. Fibers were incorporated in the acrylic with %1 loading by weight except Control group. Specimens were prepared using a standard mold of 3x0.5x0.8 cm in dimension with 8 specimens in each group. Samples subjected to three point bending test. Data were analyzed by means of ANOVA and Duncan's tests. Results revealed that treatments had significant effect ($p<0.001$) on the flexural strenght. SEM was used to examine the microstructure.
Results: The results of this study are represented in the table below:

Group	Treatment Method	Mean (kg/mm^2)
1	Control	11.55±2.09
2	Untreated	12.33±1.87
3	HEMA	12.0±2.14
4	TDGME	13.33±2.15
5	EDA	15.79±2.63

Conclusion: Flexural strength of PMMA can be improved by coating of glass fibres in a glow-discharge system ($p<0.001$).

O 41

An in vitro study to examine the effect of cement shade and moistured environment on the color of porcelain laminate veneers

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The demand for attractive restorations challenges the restorative dentist to produce prostheses that duplicate the form, function, and esthetics of the natural dentition. The esthetics of any restoration depend on outline form, translucency, and color. However, one of the most challenging aspects of esthetic dentistry is color assessment and its reproduction. Recently porcelain laminate veneers are commonly used restorations in esthetic dentistry. Composite resins are used for luting procedures. Porcelain laminate veneers are highly translucent restorations that composite resins may have an important role for the color alteration.
Purpose of our study is to examine color difference occured in porcelain samples luted with resin composites in different shades due to time. By this purpose, 10 freshly extracted human molar teeth are used. Labial and lingual faces of teeth are prepared as a flat surface up to dentin structure for luting the porcelain samples. IPS Empress (Ivoclar, Vivadent, Liechtenstein) in the size of 3mmx1mm is used for preparing porcelain samples and one face of the disks are glazed. Disks are luted with Rely X (3M Dental products, St. Paul, MN, USA) dual cure resin cement on both faces of each tooth, using A1 shade on one and A3 shade on

other face of the teeth. All steps that must be applied for laminate veneer luting procedure are followed during our luting process. Each tooth is numbered from 1 to 10 and they are placed into water for 72 hours. Shade Eye NCC (Shofu, Kyoto, Japan) oral chromameter is used for color determination. Color determination is performed before, after and 72 hours after luting. CIE L*a*b* values in CIE system is used to evaluate the color differences.
According to statistical evaluations it is shown that color demonstrated differences due to composite resin material and some features of color can be changed if the samples are placed into moistured environments

O 42

Efficiency of different light sources on microleakage of ceramic inlay restorations

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Introduction: Inadequate polymerization diminishes the physical properties of resin cement and compromises material strength. Newly developed light-polymerizing units (plasma arc, high intensity halogen and light emitting diode) operate at relatively high intensity and are purported to provide optimum properties to resin cements in a shorter time.
Purpose: The purpose of this study was to test the efficiency of four different light sources on microleakage of Class II (MOD) ceramic inlay restorations.
Materials and Method: Standardized MOD cavities were prepared in 40 freshly extracted intact human maxillary second premolar teeth. Then impressions were made and ceramic inlays (Vitadur Alpha, Vita Zahnfabrik) were fabricated. A conventional halogen light
(40 seconds), a high intensity halogen light (20 seconds), a light emitting diode (20 seconds) and a plasma arc light (6 seconds) were used to polymerize a resin cement (RelyX ARC, 3M) under the ceramic inlays. All restorations were thermocycled and then subjected to a dye penetration test. After sectioning, leakage at cavity/restoration interface was scored at occlusal (enamel), cervical (enamel) and cementum parts. Statistical analysis was performed using Kruskal-Wallis, Mann-Whitney U and Wilcoxon's Signed tests.
Results: Microleakage values varied with the light units ($p<0.05$) and localizations investigated ($p<0.05$). Microleakage at the cementum margins was greater than that at the cervical and occlusal enamel margins ($p<0.05$). The specimens that were polymerized with plasma arc light showed the highest microleakage whereas high intensity halogen showed the lowest microleakage ($p<0.05$) however there were no statistically significant differences among high intensity halogen, light emitting diode and conventional halogen curing units ($p>0.05$).
Conclusion: Plasma arc curing unit cures resin composites in shorter time than conventional curing unit however the specimens that were cured with this unit showed the highest microleakage.

0 43

Ion exchange effect on flexural strength of Ceramco II and Colorlogic veneer porcelain

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Introduction: Increasing strength of dental ceramics to reduce brittleness of ceramic is very important. The most effective methods of strengthening glasses is producing compressive stresses in their surfaces, this may be achieved either physically or thermally quenching the glass object from just below its softening temperature or chemically by modifying the atomic structure regions of glass by ion exchange.
Aim of the study: The effectiveness of ion exchange treatments of two kinds of porcelain (Ceramco II) which is used for Porcelain fused to metal restorations and Colorlogic porcelain veneer which is used to make laminate, inlay and onlay and also the effectiveness of etching on porcelain strength (laminate) and etching and ion exchange on each other was studied.
Materials and Method: Hundred ten porcelain samples as bars (in eleven groups, two Ceramco II groups and nine Colorlogic groups) has been processed by firing as the manufacture time schedule program and Tuf-Coat Slurry (G -C company, Tokyo, Japan) was
used as a ion exchanger. All the samples were experimented in a four - point bending apparatus (Instron Model 1195) and the results were evaluated by ANOVA.
Result: GC Tuf-coat increase modulus of rupture (MOR) of porcelains as 73.13% with Ceramco II and 16.77% with Colorlogic Veneer. Ceramco II porcelain has a 30% less modulus of rupture before ion exchange in compare with Colorlogic porcelain, but after ion exchange the flexural strength increases for 20% and 34%, comparing non or ion exchanged Colorlogic porcelain, respectively.

Conclusion: Tuf-coat ion exchange can increase flexural strength of porcelains. This relative simple and rapid method can bring it to practical routine ceramic restoration strengthening.

O 44

Bond strength of all ceramic crowns to different core materials

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Introduction: The increasing demand for highly esthetic, biocompatible posts and cores has led to the development of metal-free, post-and-core systems. Several core material systems are currently available for the restoration of endodontically treated teeth.
Aim of the study: The purpose of this in vitro study was to compare the shear bond strengths of five different aesthetic core materials to all ceramic crowns.
Materials and Method: Five core materials; (Core max, Sankin; Clearfil AP-X, Kuraray; Empress Cosmo, Ivoclar; Photocore, Kuraray; Dyract AP, Dentsply) specimens were prepared 10mm in diameter and 2mm high according to the manufacturers' instructions. Ten disk specimens per group were prepared and dentin served as control. All ceramic disks
(IPS Empress I, Ivoclar) 3mm in diameter and 2mm high were prepared and bonded to core specimens with a dual-curing luting resin cement (Variolink II, Vivadent). Specimens were stored in distilled water at 37°C. Shear bond strength of each sample was measured after
24 hours using a universal testing machine at a crosshead speed of 0.5mm/min. The data were analyzed with a one-way analysis of variance and Tukey HSD tests at a preset alpha of 0.05.
Results: Shear bond strength varied significantly depending on core material used ($p<0.05$). Clearfil AP-X and Photocore showed the highest shear bond strength while Empress Cosmo showed the lowest ($p<0.05$). There were no statistically significant differences among Clearfil AP -X, Photocore and Core-Max ($p>0.05$). And also there were no statistically significant differences between Dyract AP and control group ($p>0.05$).
Conclusion: In vitro shear bond strengths of ceramic discs bonded to resin based core materials showed higher bond strength values than ceramic based core material, on the other hand ceramic based core system needs to be evaluated because of lowest shear bond strength.

O 45

Bond strength of all-ceramics: Acid vs laser etching

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Hydrofluoric acid etching and silanization of all ceramic materials in adhesive luting technique is an important step and different concentrations of HF acid are being used. Various applications of dental lasers on dental materials have also been proposed for surface modifications.The aim of this study was to evaluate whether laser etching could be an alternative to HF acid etching or not.100 lithia-based all ceramic specimens (Empress 2)
(R: 4mm, h: 4mm) were prepared and divided into 5 groups: untreated, 9.5% HF acid-etched and 3 different level lased groups (n=20/group). 9.5% HF acid was applied for 30 seconds. Three groups were treated with different laser (Er: YAG laser wavelength: 2940nm, OpusDent) power settings (Table 1) followed by SEM evaluations of the substrates.

Control	9.5% HF	Laser 1	Laser 2	Laser 3
	30 sec.	300 mj	600 mj	900 mj
n=10	n=10	n=10	n=10	n=10

Table 1

Ten of the ceramic specimens in each group were luted to the other ten by a dual-curing cement (Variolink II, Ivoclar, Schaan, Liechtenstein) according to the manufacturer's instructions and shear-bond strength tests were performed with a Shimadzu Universal testing machine at a cross-head speed of 0.5 mm/min followed by the SEM evaluations of the dental surfaces. The shear bond test results were statistically evaluated (ANOVA) for all groups.
The mean shear-bond strengths were 31,9+4 MPa for the untreated, 38,49+5, 1 MPa for HF acid-etched, 42,82+6,2 MPa for laser 1 group, 29,2+4,5 MPa for laser 2 and 29,2+3,8 MPa for laser 3 groups. SEM evaluations revealed different surface morphologies depending on the laser parameters. Laser group1 exhibited the highest shear-bond strength values indicating that laser etching could also be used for surface treatments.

O 46

Shear bond strenght of resin cements after temporary cementation

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Introduction: Previous studies have indicated the infiltration of temporary cement components into deep zones of the tooth. Therefore temporary cement remnants may decrease the bond strength of bonding agents by contaminating the dentin surface. Double bond technique (DBT) requires hybridisation of exposed dentin surfaces right after the tooth preparation and sealing of the dentin tubules. DBT may also prevent the occlusion of dentin tubules.
Aim of the study: The study evaluates the effect of DBT on the shear bond strength of resin based luting agents by incorporating the effect of cement remnants.
Materials and Method: Two luting agents used in the study: RelyXArc [R] (3MEspe, USA), and Duolink [D] (Bisco, USA), Temporary cement used was RelyX TempE [E] and RelyX TempNE [NE] (3MEspe, USA). Dentinal surfaces of human molars were exposed (n=100) and the tooth were divided into groups (n=10) with 10 different treatments, including: (1) No contamination NC+R, (2) NC+D, (3) DBT+E+R, (4) DBT+E+D, (5) DBT+NE+R, (6) DBT+NE+D, (7) E+R,
(8) E+D, (9) NE+R, (10) NE+D. Bonding agents and luting resins are used according to the manufacturer's instructions. Samples were thermocycled and bond strength was measured by shear bond testing. Scanning electron microscopy (SEM) micrographs were used to evaluate the interfacial layers. Data were statistically analysed by ANOVA and LSD tests.
Results: The following shear bond strength values are expressed in MPa.

Group	Treatment Method	Mean	Group	Treatment Method	Mean
1	NC+R	3.48 (5.33)	6	DB+NE+D	17,35 (4,96)
2	NC+D	18.94 (6,53)	7	E+R	15,79 (4,89)
3	DB+E+R	22.41 (3,91)	8	E+D	12,56 (3,25)
4	DB+E+D	17,37 (4,55)	9	NE+R	13.52 (6,88)
5	DB+NE+R	24,74 (4,75)	10	NE+D	11,99 (2,82)

Conclusion: DBT is effective in terms of reducing the negative effects of temporary cementation.

O 47

Stress distribution of various glass fiber-reinforced post designs

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Introduction: Endodontically treated teeth frequently require a post and core serve as a foundation for the coronal restoration. Because of the complexity of the system, these restorations may have higher risk of biomechanical failure rates.
Aim of the study: The aim of this finite element analysis study was to evaluate stress transmission using various glass fiber-reinforced post-composite core and cast post-core.
Materials and Method: A 2-dimensional finite element model was developed simulating the labiolingual cross-sectional anatomy of a maxillary central incisor, post-core, full ceramic crown, and supporting tissues to investigate stresses in different post designs and materials (taper, double tapered, parallel sided glass fiber-reinforced, and cast). A 10-kg force was
applied as follow; 1- vertical on the incisal edge, 2- 45º diagonal on cingulum, 3- horizontal on labial surface.
Results: The glass fiber-reinforced posts showed lower peak stresses inside the root than cast posts. Compared with each other, double taper fiber-reinforced post shows the lowest peak stresses inside the core, root, and post. In case of having fiber-reinforced post, the stresses at the cervical margin are higher than cast post-core applications.
Conclusion: Due to its stiffness similarity to dentin; glass fiber - reinforced post shows the lowest stresses inside the remaining structure and restorative materials. The use of a glass fiber - reinforced post materials with a lower modulus of elasticity may reduce the incidence of root fracture.

O 48

Fracture resistance of endodontically treated maxillary central incisors restored with different prefabricated post systems

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Fracture resistance and fracture modes of endodontically treated maxillary central incisors restored with different post-and-core systems covered with all-ceramic copings were evaluated. Ten samples were prepared for each group. Groups 1, 2, and 3 consisted of tooth-coloured post-and-core, zirconia post (Cosmopost) with a composite core (Tetric Ceram), zirconia post (Cosmopost) with a custom made ceramic core (Cosmo Ingot), glass fiber-reinforced post (FRC Postec) with a composite core (Tetric Ceram), respectively. Group 4 consisted of a titanium post (ERpost) with a composite core (Tetric Ceram). The control group (group 5) consisted of root-filled incisors without posts. Tooth-coloured posts were cemented in the roots using Variolink-2, while titanium posts were cemented in the roots using Harvard cement. The all-ceramic copings were cemented using Variolink-2. Static load was applied to
2mm below the incisal edge on the palatinal surface of each samples until they were fractured. Fracture data were obtained and statistically analyzed with One-way ANOVA and a Tukes test. Additionally fracture modes were statistically analyzed with a nonparametric chi-square. The results of the means and standard deviations of the fracture resistance during static loading were: 497.5±61.94 (1), 474.61±96.84 (2), 494.61±104.67 (3), 581.34±105.36 (4), 420.42±127.48 (5). There were statistically significant differences between group 4 and group 5. Glass fiber-reinforced posts and composite cores (group 3) showed the most catastrophic failure. Consequntly, zirconia ceramic posts can be used in clinical practice.

O 49

Bond strength of three dowel systems to root canal dentin

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Introduction: Several new esthetic dowel systems are currently available for the restoration of endodontically treated teeth; but little is known about how well these dowels bonding to root canal dentin.
Aim of the Study: The purpose of this in vitro study was to compare bond strength of three esthetic, adhesively luted dowel systems.
Materials and Methods: Thirty human single-rooted extracted teeth were used. The roots were randomly divided into 3 experimental groups (n=10). The root canals were filled with a resin sealer, in conjunction with the laterally condensed gutta-percha technique. Roots were restored with one of the following three different glass fiber dowel systems using resin cement (Panavia F, Kuraray, Japan) according to the manufacturer's instructions:
1) FiberMaster (NTI, Germany), 2) Snowpost (Carbotech, France), 3) Ever Stick (Stick Tech, Finland). Specimens were stored in light proof boxes after the polymerization procedure for
24 h or 1 week. Each root was sectioned transversally and six 1mm thick sections (2 apical, 2 middle, 2 coronal parts) were obtained. Using push-out test, bond strength between dowel and root canal dentin was measured for 24 h and 1 week at a cross-head speed of 1mm/min. The maximum failure load was recorded in N and then converted into MPa. Statistical analysis of the results was performed with one way ANOVA, Kruskal Wallis and Bonferonni adjusted Mann Whitney U.
Results: No significant differences were found among dowel systems and testing times ($p>.0007$). The differences between the root sections were found to be significant ($p<.0007$). Comparison among root sections showed that the bond strengths in the coronal parts were higher than the middle parts and apical parts ($p<.0007$).
Conclusion: Fiber Master, Snowpost and Ever Stick used in this study exhibited similar bond strength values to root dentin but bond strength in coronal part was highest.

O 50

Fracture resistances of different post and core combinations

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Introduction: Despite their high esthetic properties the fracture resistance of new esthetic post-and-core systems is a controversial issue.

Aim of the study: The purpose of this study was to determine and compare the fracture resistance of a zirconium dioxide post combined with a composite core, a zirconium dioxide post combined with a ceramic core, and a stainless steel post combined with a composite core. A cast metal post-and-core system was selected as control group. Failure patterns were also evaluated.
Materials and Method: Forty maxillary central incisors were subjected to conventional endodontic treatment and randomly assigned to three experimental groups and one cast metal post-and-core control group of ten specimens each. Post holes were prepared, cores were formed, and totally 40 posts were cemented. Following thermocycling, all specimens were mounted in acrylic resin molds. Load was applied to the incisal edges of the restorations with a universal testing machine at a crosshead speed of 0.05cm/min with 45º angle to the long axes until failure occurred. Data were analyzed with a statistical software program (SPSS, SPSSFW, 9.0).
Results: The average fracture resistance values recorded with zirconium dioxide post and composite core group was (45,90±5,88) and (82,90±10,17) for the cast metal post-and-core group. Zirconium dioxide post and ceramic core group was found significantly ($p<0,001$) more resistant than Group-2 and Group-3. Fracture resistance values of cast metal post-and-core and zirconium dioxide post and ceramic core did not show significant difference.
Conclusion: Zirconium dioxide post and ceramic core was the most resistant combination. Zirconium dioxide post and composite core and stainless steel post and composite core combinations showed lower resistance values. No significant difference of resistance was found between cast metal post-and-core and zirconium dioxide post and ceramic core restorations, however, the esthetic advantage of the ceramic material should be considered clinically.

O 51

Shape and size of dental arch – A 5 year prospective study

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Introduction: Proper diagnosis is important in both prosthetics and orthodontics. The diagnostic procedure commences with the initial examination, during which a large number of individual findings and analyses of the etiology and particulars of the occlusion or malocclusion are clarified. The goal of periodic examinations is to reassess the success of the therapeutic method and to establish whether further procedures are advisable. Study cast analysis is a three-dimensional assessment of the maxillary and mandibular dental arches
and the maximal intercuspal relationship is one of the basic tools of diagnosis and treatment planning. A new method of computer imaging and measurements on a dental stone cast is a ubiquitous tool in dentistry and helps to record precise information.
Materials and Method: A special device (research prototype of the Czech Technical University) was prepared. It consists of an optical head, a power supply, and a PC computer. The optical head contains a digital color camera, a source of illumination and a removable prism. The software is designed to work on PC running MS Windows 2000. It can display live images from the camera as well as archived images. The results were compared with scanner analysis (software Kefalo). The association between initial, posttreatment and postretention alignment (5-years after orthodontic therapy) of upper and lower dental arch was analyzed for 36 patients with 108 sets of study models. The metric analysis of dental arch form was made (between canines, first premolars and firstmolars). The models were evaluated side-by-side to receive the precise control the reference points and dental arch width. Perimeter of dental arch during treatment was checked. The ideal occlusal curve was analyzed.
Results: Nonstructural data were collected. Upper and lower arch compression in first premolar and molar area was visible before treatment, thus upper jaw; men: 4-4 - 34.59mm (SE 1.28) – 37.65 (SE 0.78); 6-6 - 43.7mm (SE 0.81) – 44.28 (SE 1.01) and women: 4-4 - 34.91mm (SE 0.46) – 36.06 (SE 0.30). 6-6 – 44.12mm (SE 0.45) – 43.86 (SE 0.55). The size and shape of each dental arch was checked 5 years post therapy (overlapping of images and measurements between reference points). Correlation analysis revealed that the pattern is the same. Similar results were found in the lower arch. The shape of dental arch is wider mainly in the anterior region. A significant increase was found between canines; men: from 35.29
(SE 0.83) to 36.39 (SE 0.96) and women: from 33.62 (SE 0.39) to 34.53 (SE 0.39) and first premolars; men: from 34.59 (SE 1.28) to 37.65 (SE 0.78) and women: from 34.91 (SE 0.46) to 36.06 (SE 0.30). Metric analysis of arch form showed a significant difference between patients before and after therapy. The arch form width in men was larger than in women. A significant difference was

found in the distance between the first molars.
Conclusion: Computer image monitoring can be used for evaluation of dental arch changes. Geometrically calibrated images helps to compare of several different steps of the treatment.

O 52
Hemidentate – Restorative treatment considerations
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A dental arch unilaterally missing a canine and all other teeth posterior to it (hemidentate) is a challenging condition for restorative treatment. Treatment options include mainly implant-supported fixed partial denture or teeth/tissue-supported removable partial denture.
The rehabilitation by a conventional removable partial denture poses biomechanical obstacles to the restorative dentist. Canine absence negates efficient eccentric movement guidance, hence avoidance of lateral forces acting on a removable partial denture is difficult to accomplish. Lateral forces, coupled with greater moments, may accelerate the edentulous ridge resorption and lead to sinking of the removable partial denture. The longevity of the remaining teeth is compromised due to high forces and moments exerted by the removable partial denture and furthermore in a periodontally compromised dentition.
The outcomes are: an unstable occlusion, unfavorable chewing side, diastema opening and continual need of rebasing/relining and teeth replacement to maintain esthetics and functional objectives. Clasp visibility in the high smile patient further increases the esthetic complexity.
The advantages and drawbacks of rehabilitation options in Hemidentate patients will be presented and discussed.

O 53
The comparison of load distribution of free ended removable partial dentures on the supporting structures by using holographic interferometry
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Introduction: Distal extension RPD' s are supported by tooth and mucosal structures on the alveolar crest. Difference of flexibility between supporting tissues can cause torque on the tooth, and prosthetic problems. Functional impression tecniques, flexible clasp designs, stress breakers can use to solve these problems. There are a lot of tecniques to evaluate the load transmission to tooth and free ended crest region. Holographic interferometry is the one of these tecniques.
The aim of this study was to analyze the load distribution of bilaterally free ended removable partial dentures obtained by four impression techniques on the supporting structures.
Materials and Method: Acrylic mandibular model mechanically similar to oral environment was fabricated. The model had an artificial periodontal ligament, abutment teeth and also an artificial mucosal coverage on the residual ridge. Mucostaticimpression was used as a control group. Modified Rouot's, Lejoyeux's, and Holmes's (altered cast impression) functional impression techniques were used as the comparison group. Four prostheses were fabricated according to these impressions. Vibration free table, He-Ne laser source at 10 mW, red light sensitive holographic plates, chemicals were the part of holographic setup. For each prostheses on the mandibular model 5-50 N, 5-100 N, 5-150 N, 5-200 N static and dynamic vertical loads were applied and 16 double exposure holograms were obtained. Holograms which contained the deformation data were developed, washed and dried. After use of same holographic setup and under the reference laser beam, hdograms were illimunated.

O 54
Condylar guidance registration using orthopantomographic radiographs
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The Clinical validity of condylar guidance registration for prosthetic restorations has been questioned due to a large variability in recording accuracy . The use of average values as alternative may not sufficiently represent the condylar guidance in extremecases. Sagittal imaging of the incline of the

eminence from panoramic orthopanthmographic radiographs is suggested as an alternative method of setting condylar guidance . Orthopanthmographic images and impressions of the condyl ar fossae in 25 human dry skulls were recorded and compared. Statistical correlation was found between the anatomic eminence outline and the corresponding panoramic image P= 0.001 for both right and left sides. Significant statistical correlation was found between theleft and right side in the same skulls P=0.025. This finding suggests that the use of the image of the eminence in a orthopanthmographic radiograph may be used for the setting of mean condylar guidance in semi-adjustable articulators.

O 55

Cephalometric evaluation of the vertical dimension of occlusion

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The vertical dimension of occlusion in edentulous patients can be determined clinically by the rest position measurement method. One of the existing method for analysis of the vertical dimension of occlusion or occlusal face height is cephalometrically analysis of the distance from point nasion to point menton (N-Me).
The aims of the present study were to cephalometrically analyse the vertical dimension of occlusion in participants with natural teeth skeletal class I, to cephalometrically evaluate the reconstructing vertical dimension of occlusion of edentulous patients skeletal class I and to compare examined variables between participants with natural teeth and edentulous patients.
Vertical dimension of occlusion was measured in 30 lateral cephalometric radiographs of edentulous patients (experimental group), with models of complete dentures after clinical methods of de termining the vertical and horizontal intermaxillary relation and 30 lateral cephalometric radiographs of participants with natural teeth (control group).
The results showed the vertical dimension of occlusion span a range between 106,7 - 138mm (X=122,24) in participants with natural teeth. In edentulous patients the values of vertical dimension of occlusion span a range between 109,8 - 141,6mm (X =122,46). Vertical dimension of occlusion among man was increased in the group of participants with natural teeth as well as edentulous patients . The results of t-test proved that there were no statistically significant differences in examined variables between participants with natural teeth and edentulous patients (p>0,01). The results indicated a remarkable cor relation in the vertical dimension of occlusion established initially for the edentulous patients when compared with the measurements made for participants with natural teeth.
Clinical methods of determining the vertical dimension of occlusion in edentulous patients skeletal class I used in the designing procedures of complete dentures were reliable enough in reconstruction of the examine linear value.

O 56

Relationship of occlusal vertical dimension to the functions of the stomatognathic system

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Introduction: The determination of the occlusal vertical dimension is regarded as particularly important in the treatment with complete dentures to aid the dentist in the establishment of a therapeutic occlusal vertical dimension.
Aim of the study: The purpose of the study was to evaluate the role of the occlusal vertical dimension of complete dentures in functional disturbances of the masticatory system.
Materials and Methods: 21 patients wearing complete dentures with low occlusal vertical dimensions were selected. After clinical examination of the patients, the functional evaluation of the stomatognathic system using the Helkimo indexes was completed. Existing complete dentures with low occlusal vertical dimensions were transferred to the Hanau H2 model articulator with the face bow record. The amount of planned increases were calculated with the cephalometric analysis method and established on the articulator using the incisal pin. Afterwards, new dentures were constructed using the newly determined occlusal vertical dimensions. Mean increase of the occlusal vertical dimension was 9 mm. Patients were recalled after one month and the clinical examination, fuctional evaluation of the stomatognathic system with the Helkimo indexes were conducted with the new dentures.
Results: 85% (18) of the patients adapted to their new dentures immediately and started using regularly. Symptoms evaluated by the Helkimo anamnestic and Helkimo clinical dysfunction indexes

were reduced after 1 month time interval and the differences were statistically significant (Wilcoxon signed ranks, $p<0.05$). The symptoms evaluated by the Helkimo anamnestic, Helkimo clinical dysfunction indexes and the amount of increases was statistically significant (Mann Whitney U, $p<0.05$).
Conclusion: An average of 9 mm increase in the vertical dimension of occlusion gave a successful treatment outcome for most of the patients. With the construction of the new complete dentures, funtions of the stomatognathic system were improved.

O 57
The use of overdentures in clinical dental practice
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Introduction: An overdenture is a prosthesis that derives support from one or more abutment teeth by completely enclosing them beneath its impression surface. The use of roots to support a denture is not a new idea, some of the earlist reports of the technique having been written in the middle of the nineteenth century. For the retention of overdentures stud attachments, magnet attachments and bar attachments are usually used. A comparison of these attachments shows the advantages and the disadvantages of each. The type and complexity of the design and the type of treatment required for the abutment teeth are heavily influenced by the a cost-effectiveness analysis.
Aim of the presention: This clinical report describes the prosthodontic rehabilitation of five patients with overdentures. Case description and the treatment carried out: The retention of overdentures was obtained with bar, magnet or stud attachments. In one patient, root copings without attachments were used. Patients were recalled one day, six months, and twelve months after treatment.
Patient progress: Clinical examination twelve months after treatment revealed no evidence of disorders associated with restored roots and removable prostheses.

O 58
Synovial fluid apoptosis in the TMJ's with non reducible disc displacement
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Introduction: Internal derangement of TMJ is often accompained by synovitis and degenerative changes on the surface of the cartilage. Apoptosis, known as programmed or physiologic cell death, plays diverse roles in embryogenesis and normal homeostasis, as well as in various pathologic conditions. Synovial fluid and cartilage in TMJ diseases are now known to produce several mediators that have the potential to induce chondrocyte apoptosis. Chondrocyte death may be of pathogenetic significance in the cartilage repair in response to injury, in the development of osteoarthritis, and possibly also in the pathogenesis of inflammatory arthropathies.
Aim of the study: In this study apoptosis related factors; Fas, Nuclear Matrix Protein were analyzed in the synovial fluids of the patients with disc displacement without reduction.
Materials and Methods: Synovial fluid was obtained from 17 joints in 17 patients (11 females and 6 males) referred to our clinic with the complaints of limited mouth opening, joint sounds and/or TMJ pain. The patients ranged in age 19 to 55 years (mean 32,06). Synovial fluid obtained by arthrocentesis for therapeutic reasons was used for the analysis. These samples were analyzed by using APO-1/Fas and cell death detection (Nuclear Matrix Protein) ELISA methods.
Results: 12 of the nonreducing joints were the left (71%) and 5 were the right side (39%). The chief complaint was pain in theaffected side and limited mouth opening. Only two patients had clicking in their affected joint whereas fourteen patients reported pain in their joint. All patients experienced a significant ($p<0.01$) increase in MMO immediately postarthrocentesis.
The sFas level ranged from 0 to 1500 pg/ml (mean 340±470 pg/ml). The NMP level ranged from 8 to 52.8 U/ml (mean29.22±13.65 U/ml).
Conclusion: Low levels of sFas and detectable levels of NMP in the synovial fluid may suggest that apoptosis may contribute toTMJ degeneration in patients with ID.

O 59
Finite element stress analysis of functional stresses produced in temporomandibular joint by vertical forces at different occlusion types
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Introduction: Synovial joints in the human body are exposed to various loading conditions and the loading condition in the joints has a great influence on developing and maintaining the normal structure and function of joint components. There is limited knowledge about how the functional stresses occur, localizations and distribution of loads at temporomandibular junction.
Aim of the study: The purpose of this study was to investigate the amount and localization of functional stresses produced in temporomandibular joint by vertical and lateral forces at different occlusion types with finite element method.
Material and Methods: Three dimensional models of mandible and temporomandibular joint have been modeled and analyzed. Modeling and analysis were performed with ALGOR FEMPRO Version 13 computer software and Pro/Engineering 2000i in Dual Pentium III GHz computer environment. The stresses have been calculated according to von Misses criterions and converted to drawings.
Results: In the main models stresses were concentrated at regions where the functional forces have been applied and mandibular condyle. The stress concentrations at medial regions of mandibuler condyle were significantly higher than distal regions. When the articular disc was investigated, the concentration at lower surface was higher than the upper surface.
Conclusion: Even though similar results observed at all three occlusion types, higher stress values occur at different locations at mandible and especially at mandibular condyle in canine protected occlusion in comparison to other occlusion types with vertical force application. Despite, stress amount at articular disc occur at lower values in comparison to other occlusion types.

O 60

Emotional characteristics of temporomandibular disorder patients

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The role of psychological disturbances in the etiology of temporomandibular disorders (TMD) is controversial. Emotional factors will undoubtedly make pain more difficult to differentiate and more complicate to treat.
The aim of this study was to compare somatic complaints and psychological distress in a group of patients with temporomandibular disorders who had pain longer than 3 months and healthy volunteers.
Methods: One hundred and seven patients with a mean age of twenty-eight years were included for this study (94 women,13 men). The patients were assessed using the following questionnaires: The trait portion of the Spielbergers' State Trait Anxiety Inventory and the Symptom Checklist-90-Revised (SCL-90-R). The SCL-90-R is a 90-item symptom checklist that provides ratings on the following dimensions: somatization, obsessive-compulsive, interpersonal sensivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Fifty patients with temporomandibular disorders who had pain longer 3 months and fifty control subjects whose age and sex distribution matched that of the experiment group answered the questionnaires. The questionnaires were self-reported.
The results showed that there was a strong association between temporomandibular disorders and psychological disorders. As to the SCL-90-R scores and to the State Trait Anxiety Inventory scores, there was a significant difference ($p<0.05$) between control and experimental groups.
It can be concluded that, temporomandibular disorders patients particularly those with chronic temporomandibular disorders pain, experience more anxiety and depression on average and have other psychosomatic symptoms more frequently than healthy control subjects.

O 61

Measuring cervical range of motion and angle of mouth opening

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Cervical range of motion and mouth opening are critical factors in diagnosis and evaluating the efficiency of the rehabilitation of masticatory and cervical rheumatologic disorders. Besides, one of the common symptoms is the limited mobility of the cervical range of motion with the increased age. Angle of mouth opening and maximum mouth opening are accepted as criteria for evaluating the mobility of the TMJ. The aim of this study was to compare the angle of mouth opening and cervical range of motion values of dentate and edentuluous subjects. 14 female and 6 male (n=20) subjects (mean age: 24) for the dentate group
(group 1) and 11 female and 9 male (n=20) subjects (mean age: 62) for the edentuluous group (group 2) were chosen for the study. Cervical goniometer (CROM) was used to measure suboccipital flexion

and extention, cervical flexion and extension, lateral flexion, rotation, retraction and protraction whereas mandibular goniometer and cervical goniometer (CROM) were used to measure angle of mouth opening for both groups. All the measured
parameters except suboccipital flexion and retraction showed significant difference for the tested groups. Sex did not have effect on all the tested parameters except protraction. Age
was an important factor in evaluating cervical range of motion and angle of mouth opening whereas sex was not.

O 62

Patient evaluation of treatment with implant-supported fixed partial dentures

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The aim of this study was to analyze the patient evaluation of functional treatment outcome implant-supported fixed partial dentures.
Materials and Method: 125 implants were placed in 40 patients who received implant-supported fixed partial dentures (66 were placed in the maxilla and 59 in the mandible). A total of 98 implants were placed in posterior segments. After the connection of the prostheses, patients' opinions on oral functions, mastication, phonetics, oral hygiene, chewing comfort and aesthetics, were evaluated by means of a questionnaire at the baseline appointment and recalls that were done at 6 month intervals. Standardized radiographs were taken using the long-cone technique at each recall evaluation.
Results: The cumulative implant survival rates after on average of 18 months (min 6, max 30 months) of loading was 100%. The implants were in function and clinically stable when tested individually; there was no pain from the implants; the peri-implant soft tissues were clinically healthy. After treatment all the patients were satisfied with their implant-supported fixed partial dentures. All the patients said that they would undergo the treatment again, if necessary; and recommend it to others.
Conclusion: This clinical study gives evidence of very high success rates with implant-supported fixed partial dentures.

063

Patient satisfaction with mandibular implant retained overdentures during the first year of service

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Objective: The goal of this clinical follow-up study was to evaluate the clinical outcome, post-treatment care and patient satisfaction with mandibular overdenture treatment during the first year of service. The outcome assessment focuses on the patient's subjective evaluation of denture-satisfaction and chewing ability.
Materials and Method: A total of 12 edentulous patients with a severely resorbed mandible received treatment involving implant placement in the mandibular intraforaminal region. 28 implants were evaluated by clinical and radiographic parameters. The patients own appreciation of the implant and the prosthetic therapy were evaluated. Patient's opinions on oral functions, mastication, phonetics, oral hygiene, chewing comfort and aesthetics, were evaluated by means of a questionnaire both before implant installation and at the last
follow-up.
Results: The cumulative implant survival rates after 1 years of loading was 100%. The implants were in function and clinically stable when tested individually; there was no pain from the implants; the peri-implant soft tissues were clinically healthy. Before treatment all patients were dissatisfied with their conventional mandibular denture and they could hardly chew tough or had food. One year after treatment all the patients were satisfied with their mandibular implant retained overdenture. All patients said that they would undergo the treatment again if necessary and recommend it to others.
Conclusion: For patients with a severely resorbed mandible, overdentures retained by dental implants appear to provide a more satisfactory solution to their denture-related problems.

O 64

Comparison of two and three dimensional FEM analysis in dental implants

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Introduction: Biomechanical influences play an important role in the longevity of bone around dental implants. Besides many stress analysis methods exists, finite element analysis is the most common one. Over the past several years, interest has increased in finite-element analysis as a method of estimating mechanical stresses occuring in bone surrounding dental implants. 2-D and 3-D models are present at finite element method.
Aim of the study: The aim of this in-vitro study was to compare the amount and localization of stress that occur with implant supported metal ceramic restorations with two and three dimensional finite element models.
Material and Method: Two and three dimensional models of mandibular section of bone with missing second premolar and its superstructures have been modeled and analyzed.
A 4.1x10 mm sized implant placed in the mandibular second premolar area was simulated and analysed. Cobalt-Chromium (Wiron 99) was used as the crown framework material and porcelain was used for occlusal surface. Modeling and analysis were performed with ALGOR FEMPRO Version 13 computer software and Pro/Engineering 2000i in Dual Pentium IV 1.6 GHz computer environment. The stresses have been calculated according to von Misses criterion and converted to drawings.
Results: The results demonstrated that stress localizations in two and three dimensional finite element models were similar. But the results varied in terms of stress magnitude and in the stress ratio for two and three dimensional models. Two dimensional finite element model resulted high stress values within the framework, porcelain, implant, bone and main model which was1.5-3 times greater than the stresses in three dimensional finite element model.
Conclusion: For the comparing two and three dimensional models investigated, results were differed. The three dimensional finite element method appeared to overcome most of the problems associated with earlier experimental methods in that the dimensions and properties of all composite materials could be easily simulated and varied, and stress and displacement could also be easily calculated. Two dimensional model did not adequately represent the clinical situation.

O 65

Prosthodontic applications for obstructive sleep apnea treatment: A prospective study

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Obstructive Sleep Apnea (OSA), is a common, chronic disorder of sleep and breathing. It may present itself as pathological sleepiness with respiratory and/or cardiovascular complications. OSA is related to repetitive partial or complete upper airway obstruction. It develops during sleep with manifestations that include snoring, apnea and hypopnea. Dental devices have been used to help manage snoring and obstructive sleep apnea, or OSA. In this prospective study with 2 years follow up, a Mandibular Anteriorpositioner Splint (MAS) was used on OSA patients. The changes in the Respiratory Disturbance Index (RDI), Oxygen Desaturation (OD) and its index, subjective improvement emotion and the complications on Temporomandibular Joint (TMJ) were evaluated. The RDI, OD, ODI was based on all-night Polysomnographic (PSG) measurements performed before and after approximately 3 weeks, 1, 12, 24 months of appliance use. It was also found that anterior airway was effective on OD and ODI which was an original finding when compared with up-to-date OSA studies. Emotional improvement, a subjective finding, was rated with the Epwort Sleepiness Scale (ESS) performed simultaneously with PSG tests. Therefore, subjective data of all subjects were transformed into objective data. TMJ complications were evaluated with Magnetic Resonance Imaging (MRI) and Helkimo's Index (HI) at baseline and after 12 and 24 months . Although only 80 of the 100 subjects agreed to undergo post-appliance evaluations, all subjects showed a clear decrease in the RDI, OD, ODI. A 75% improvement in the RDIs of all subjects at week 3 was observed. RDIs had decreased by 95% in time. None of the subjects
complained persistent TMJ pain problems according to HI and MRI after using the device. Eighty subjects had used the MAS successfully throughout 24 months and their MAS therapies are still being continued. Eighty subjects who responded at 24 months reported an improvement by 80% according to ESS. It was concluded that MAS is an effective and alternative method to treat all types of OSA and snoring.

O 66

Education on upper airway sleep disorders in turkish dental schools

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Introduction: Many people suffer from upper airway sleep disorders, which affect the quantity and quality of sleep, make patients more prone to accidents and increase the risk of cardio-pulmonary diseases and death. Even though dentists can play a role in the successful treatment of these patients with oral devices, many lack of participating in the treating team. This, in part, may be due to lack of education.
Aim of the study: The purpose of this study was to determine which Turkish dental schools include the treatment of upper airway sleep disorders in their curriculum. This information may prove helpful to other schools in determining whether, and to what degree, they should teach about this health problem and its treatment options.
Materials and Method: A survey instrument (questionnaire) was mailed to all of the Turkish dental schools (n=16) affiliated with the Turkish Council of Higher Education. The questionnaire consisted of 9 multipart questions. The data were analyzed by use of descriptive statistics.
Results: Eleven of the 16 schools that received the survey responded. Fifty-fore percent of the schools that responded were teaching upper airway sleep disorders and its treatment, and 45% treated patients with oral devices. There was no apparent consensus with regard to whether to teach the subject, at what level, or to what degree.
Conclusion: Even though many patients suffer from potentially life-threatening sleep disorders, many of which could be treated with oral devices, fewer than half of the reporting dental schools currently included this area on a clinical level as part of their curriculum. This lack of inclusion is caused primarily by a lack of familiarity with the information available on these disorders.

O 67

An alternative technique by using digital photography for fabricating a custom made oculer prosthesis

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Colour selection in paper iris disc and black iris disc techniques evidently requires skill furthermore, painting process takes long time. Generally, orbital defects cause esthetic and functional disorders. Ocular defects and congenital deformities appear as a result of tumors or trauma, and may affect peripheral tissues. Requirement of ocular prosthesis is generally satisfied with the prefabricated ocular prostheses, but in some patients, colour or size of prefabricated ocular prostheses cannot keep to the right esthetics. During the fabrication process of custom made ocular prosthesis, some difficulties are experienced in paper iris disc and black iris disc techniques and resemblance of both sclera and iris. In this article, fabricating procedures of resembling sclera and iris colour to the colour of symmetric natural eye have been explained by using digital photography technique. With this new technique more esthetic, more natural and more practical ocular prosthesis can be made than the other custom made ocular fabrication techniques.

O 68

The effects of two desensitizing agents on pulpal blood flow

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Introduction: The expose of dentinal tubuli after crown preparation may cause dentinal hypersensitivity. Treating the exposed dentin, involves closing the tubules. Dentin bonding agents or fluoride solutions are often applied on exposed dentin surface to prevent dentinal hypersensitivity. In the previous studies the effect of fluoride agents on pulpal blood flow had not been evaluated with laser doppler flowmetry (LDF).
Aim of the study: The aim of this study was to investigate the effect on the pulpal blood flow of two different agents which were used to prevent dentinal hypersensitivity after teeth preparation in fixed partial denture using LDF.
Materials and Method: The experiments were caried out on twenty four vital human teeth without any restoration and caries which would be used for fixed partial denture abutments in eight individuals. Before measurements, a silicone putty splint was constructed for each patient and three holes were constructed on each splint to facilitate positioning of the fiberoptic probe of the LDF. Holes on the

putty splint were located over cervical third of each teeth to position the probe. Prepared teeth were divided into three groups: Fluoride solution in group 1, aceton-free bonding agent in group 2, no treatment in group 3 (control). Changes in pulpal blood flow were recorded prior to preparation, 3 hours after preparation, 5 and 15 minutes after the application of an acetone-free bonding agent or a fluoride solution. For statistical analysis Bonferroni test was applied.
Results: In all teeth pulpal blood flow increased after teeth were prepared ($p<0.05$). In control group pulpal blood flow were stable during the experiment. In group 1 and group 2 pulpal blood flow decreased significantly ($p<0.05$). There was no significant difference between group 1 and group 2 ($p>0.05$).
Conclusion: There seems to be no direct, harmful, acute effect of either agents on the dental pulp when applied as recommended by the manufacturers.

O 69

The effect of dentin desensitizing agents on crown retention

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After tooth preparations, exposed dentin surfaces may lead to hypersensitivity. Although various dentin desensitizing agents are currently being used to eliminate sensitivity, their effect on crown retention is not clear. The aim of this study was to evaluate the effect of desensitizing agents on crown retention with conventional cements. Fifty extracted human premolars were prepared with standardized crown preparation with a special air-turbine holder device. All preparations were made with 6° axial convergence and surface areas were standardized with a special calculation method. For all preparations a full crown with retention for the universal testing machine was invested. Tooth specimens were divided into five groups randomly and different dentin desensitizing agents were applied to four groups. The fifth group was counted as the control group.
All crowns were cemented with zinc-polycarboxylate cement. After storage at 26°C for 48 hours at 100 relative humidity, the crowns were removed by using a universal testing machine at a cross-head speed of 0.5mm/min. Tensile strength values were recorded. Although there were no significant differences between the desensitizing agents, differences were found between the experimental groups and the control group ($p<0.05$). Using dentin desensitizing agents following tooth preparations to prevent the sensitivity was found to have negative effect on the crown retention.

O 70

Effect of dentin disinfectants on the postoperative sensitivity of prepared teeth

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The aim of the present study was to evaluate whether the application of a dentin disinfectant on prepared teeth decreases the postoperative sensitivity or not. A total of 15 patients received 40 either metal-ceramic or acrylic veneered crowns. Half of the symmetrical preparations on the same patient were treated with Tubulicid fluoride containing dentin disinfectant (Dental Therapeutics AB, Nacko, Sweden) (experimental group) immediately after tooth preparation, during metal framework and dentin try-ins and at cementation while the contralateral preparations were left untreated (control group). All prepared teeth were covered with acrylic temporary crowns immediately after preparations. The sensitivity of the teeth were measured on all aspects by a Visual Analogous Scale (VAS) (0: no pain, 2: slight pain,
4: disturbing pain, 6: irritating pain, 8: serious pain, 10: unbearable pain) after the application of an Ethylchloride spray (100 ml, Walter Ritter GmbH, Hamburg, Germany) with crowns in situ at treatment stages as well as postoperative recalls at 1st and 3rd months. The obtained data were statistically analyzed by Wilcoxon Signed Ranks, Chi-square and Friedman tests. Spontaneous postoperative sensitivity in the control group was higher than the experimental group ($p<0.05$) while there were significant decreases in postoperative sensitivity both in the dentin disinfected and the control groups ($p<0.05$) after 1st and 3rd months and there were no significant decreases between groups. The dentin disinfectant applied group exhibited significant decreases ($p<0.05$) in sensitivity between baseline and cementation. Dentin disinfectants were found to be effective in decreasing the postoperative sensitivity of prepared teeth.

O 71

Comparison of bond strength to dental substrates with different surface treatments

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Acid etching of the dental substrates is one of the most important steps in adhesive luting technique. Acid etching and/or laser etching has been proposed to increase the bond strength of the restorative materials. The aim of this study was to compare the shear bond strengths of acid etched and/or laser etched enamel and dentin. 320 freshly extracted human molar teeth, free from caries and restorations were divided into 2 main (enamel and dentine) and 16 subgroups (control, acid, 3 laser and 3 laser + acid groups). Enamel (group E) and dentin (group D) specimens were divided into 8 subgroups (n=20/group) 6 of which were treated with different laser (Er: YAG laser wavelength: 2940 nm, Hoya - Conbio) power settings. Three of the lased subgroups in each group were then acid etched (Table 1) followed by SEM evaluations of the substrates.

Table 1

Control	37% H3PO4	Laser 1	Laser1+Acid	Laser 2	Laser2+Acid	Laser 3	Laser 3+Acid
n=20	n=20	n=20	n=20	n=20	n=20	n=20	n=20
Enamel untreated (Group E)	30 s	50 mj	50 mj+acid	70 mj	70 mj+acid	90 mj	90 mj+acid
(E1)	(E2)	(E3)	(E4)	(E5)	(E6)	(E7)	(E8)
Dentin untreated (Group D)	15 s	40 mj	40 mj+acid	60 mj	60 mj+acid	80 mj	80 mj+acid
(D1)	(D2)	(D3)	(D4)	(D5)	(D6)	(D7)	(D8)

320 lithia-based all ceramic specimens (Empress 2) (R: 4mm, h: 4mm) were prepared and luted to dental substrates according to the manufacturers' instructions and shear bond strength tests were performed with a Shimadzu Universal testing machine at a cross-head speed of 0.5mm/min followed by the SEM evaluations of the dental surfaces. The shear bond test results were statistically evaluated (ANOVA, p=0.05) for all groups. Different bond strength values were obtained for all groups both in enamel and dentin. SEM evaluation revealed various surface morphologies following laser treatments. Dental laser etching could be an alternative to conventional acid-etching.

O 72

Microleakage of direct and indirect fiber reinforced composite inlays

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Fixed partial dentures have been favorable prosthodontic treatment options with proven clinical reliability. Recently, introduction of metal-free restorative materials has led to the use of composite/ceramic fixed partial dentures as an alternative to conventional metal fused-to-ceramic restorations, and fiber-reinforced composite (FRC) system has enhanced the physical properties, improved esthetics, and increased the durability. Marginal fit of restorations is an important factor in the long-term success. Any marginal gap may expose luting agents to the oral enviroment, leading to higher rate of cement dissolution and degradation and permitting percolation of microibes. The aim of this study was to evaluate the influence of FRC on marginal microleakege of inlays fabricated using direct and indirect techniques on occlusal and gingival aspects. Forty standardized mesio-occlusal cavities were prepared in extracted human premolars with diamond burs. Prepared teeth were randomly assigned to four groups of ten teeth each and restored using (1) TetricCeram composite resin in direct technique or
(2) composite inlays made with Sinfony and luted with VariolinkII composite resin cement,
(3) everStick C&B resin impregnated glass fibre and TetricCeram in direct technique or (4) everStick C&B resin-impregnated glass fibre and Sinfony composite in indirect technique cemented with Variolink II. Microleakage of inlays were evaluated by stereomicroscope after 1-day water storage then thermal cycling (6000 cycles; 5-55°C) and 1-day basic fuchsin staining. Also, thickness of cement layer was measured in indirect technique. Microleakage was evaluated on occlusal and gingival surfaces using score point system, which was based on penetration depths and statistically analyzed with ANOVA followed with Tukey post hoc tests. Microleakage in gingival area revealed no differences between groups (p>0.05). In occlusal surfaces microleakage revealed statistical

differences between groups (p=0.02), where FRC-groups had a tendency for lower microleakages than composite restorations. Thickness of cement layer did not differ statistically between groups with indirect technique.
Within limitations of this study, it can be concluded that both direct and indirect techniques can be used in FRC restorations. This study confirms lower microleakage in enamel-(occlusal) surfaces compared to dentin-(gingival) area.

O 73
Evaluation of different resin systems in luting of ceramic core materials
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Introduction: Posts and cores are often required for the restoration of endodontically treated teeth. With the increased use of all-ceramic systems for esthetic tooth restorations , there is need for esthetic core reconstructions. A new ceramic core material that provides esthetic foundation for all-ceramic crown was recently developed and to know best adhesive system in luting this material is important.
The aim of the study: This study evaluated the effect of four different resin cements on shear bond strength of ceramic core materials.
Materials and Method: Sixty molar teeth were embedded in self curing acrylic resin. Occlusal third of the crowns were sectioned under water cooling. Dentin surfaces were polished with 600, 800 and 1200 grit waterproof polishing papers for 30s. All specimens were randomly
divided into four groups of 15 teeth each according to the cement used. 60 cylindrical-shaped 2.7 mm wide and 3 mm long ceramic core material was heat pressed. Core cylinders were then luted with one of the four different resin systems to dentin (Super Bond C&B-Sun Medical, Chemiace II-Sun Medical, Variolink II-Vivadent, Panavia F-Kuraray) according to the manufacturer's instructions. Shear bond strength of each sample was measured after
24 hours using a universal testing machine at a crosshead speed of 1mm/min. Bond strength values were calculated in MPa and the results were statistically analyzed using one way ANOVA and Tukey HSD tests.
Results: Shear bond strength varied significantly depending on luting cement used ($p<0.05$). Variolink II showed the highest and Chemiace II showed the lowest bond strength values ($p<0.05$). No differences were found between the Panavia F and Super Bond C&B groups ($p>0.05$).
Conclusion: The use of Variolink II system can be recommended for luting ceramic cores to dentin surfaces.

POSTER PRESENTATIONS

(Abstracts)

P 01
Bacterian contamination of impressions and models in prosthodontics
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Objectives: The main objective of this study is the evaluation of the bacterian contamination of the impression materials which are the most frequently used in Romania and also of the resulting models.
Materials and Method: We have studied the bacterian contamination of a variety of impression materials and of the resulting models, in different technological phases (both clinical and in laboratory). The selected impression materials are polyethers, polysulphurs, addition and condensation siliconates, irreversible hydrocoloides and zinc oxide-eugenol (ZOE pastes). The evaluation of bacterian contamination from the surface of the impression materials and of the resulting models was made using 36 patients. The prelevating of samples has been made in different phases; before inserting the impression material into the oral cavity (clinical), after uninserting the impression (clinical), before washing the impression (clinical), after washing the impression (clinical) and after obtaining the model (technical phase). We studied the presence of both gram positive and negative germs of fungi and protozoars. Each bacterian culture had its specific growth substances.
Results and Conclusions: After evaluating the bacterian contamination of the impression and model materials we observed the presence of enterobacteria or gram negative germs (Escherichia Colli, Proteus, Citrobacter, Klebsiella) of gram positive germs (Staphilococcus aureus, Streptococcus hemoliticus) and the presence of Candida albicans. The biggest bacterian contamination was

observed on the surface of alginates (because of the high porosity of their structures), followed by the condensation siliconates, polysulphurs, polyethers and in the end the ZOE pastes which are less contaminated because of the presence of eugenol.

P 02

An in vitro study of the adherence of candida albicans to acrylic specimens reinforced with different fibers

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PMMA is one of the most commonly used material in prosthetic dentistry. Reinforcement with fibers emerges to improve the physical properties of these materials in recent years. On the other hand adherence of candida albicans on this sort of materials is a considerable problem. The aim of this study is to evaluate the effect of different environments on the adherence of candida albicans to reinforced PMMA samples. Thus, the samples are prepared by heat-cured acrylic (Paladent 20, Heraeus Kulzer, Germany) and Eversticknet, Sticknet (Stick Tech, Finland) are used as reinforcement materials. The size of the samples are 10x10x2mm and after they are placed into saline solution and unstimulated saliva, they have been incubated in candida albicans suspension. Colony counting is done by scanning electron microscope (SEM). The differences between the groups are examined from obtained results by Mann-Whitney U test. The adherence of candida albicans on polymer surfaces did not show significant differences due to reinforcement materials ($p>0.05$). However, the amount of candida albicans on samples placed in saliva decrease
The decrease is found statistically significant particularly in Eversticknet reinforced samples ($p<0.01$).

P 03

Water sorption and solubility of mica filled denture teeth polymethylmethacrylate (PMMA) resin

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Purpose: Addition of filler to PMMA matrix may be enhanced the mechanical properties of the polymerized resin but there is a great concern about the stability of PMMA in aqueous environments. The aim of this study was to determine the water sorption and solubility of mica filled denture teeth PMMA resin.
Method: Test specimens were fabricated from silanized and unsilanized mica filled denture teeth PMMA resin. The mica filler concentration of the test specimens was 5%, 10%, 15%, 20% by weight. Control specimens were unfilled PMMA resin. Water sorption and solubility were tested in accordance with International Standards Organization specification No 1567 with the exception of the dimensions of the test specimens.
Results: Water sorbtion diminished following mica filler addition, while solubility increased in those test specimens containing unsilanized mica filler (5%, 10%, 20%), those containing
10% silanized mica displayed reduced solubility ($p<0.05$ for both). Silanation resulted in reduction of water sorbtion (except the 10% mica containing group) and decrease in water solubility (except the 5% mica containing group) in all test specimens ($p<0.001$). The increase in the percentage of added mica affected the water solubility and sorbtion of the specimens only when unsilanized mica was used. Whereas no change was observed in the silanized mica added group.
Conclusion: Addition of mica as a filler in the PMMA resin of denture teeth, resulted in a significant decrease in the water sorbtion while solubility was generally unaffected.

P 04

Thermal diffusivities of one autopolymerizing and two heat polymerizing acrylic resins

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Introduction: Studies have shown that physical characteristics of denture base materials may affect patient acceptance of denture prostheses by altering sensory experience of food during mastication. Thermal diffusivity is one material property that has been cited as being important in determining gustatory response.
Aim of the study: This study prepared and measured in vivo thermal diffusivities of two heat polymerizing and one autopolymerizing acrylic resins.
Materials and method: A conventional heat cured, one injection molded and autopolymerizing acrylic resin was used to prepare removable plates for upper jaw. The patient drank a hot drink (69ºC) and a cold drink (6ºC). The temperature rise was measured in the palatal region with a J-type thermocouple wire that was connected to a data logger. Ten measurements were recorded for each removable plate. Differences between oral temperature and highest temperature, oral temperature and lowest temperature readings were taken and the 10 calculated temperature changes were averaged to determine the mean value in temperature rise. Thermal diffusivity values were compared using one way analysis of variance (ANOVA) at a preset alpha of 0.05.
Results: Thermal diffusivities varied significantly depending on acrylic resins used. Thermal diffusivity of the autopolymerizing acrylic resin was found to be significantly higher than the conventional and injection molded acrylic resins ($p<0.05$). The conventional heat polymerized acrylic resin showed the lowest thermal diffusivity ($p<0.05$).
Conclusion: Besides all disadvantages of autopolymerizing acrylic resins, their high thermal diffusivity property may be an advantage for them.

P 05

The comparison of microhardness values of different acrylic resin teeth

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The purpose of this study was to compare the physical wearing resistance of acrylic resin teeth from different manufacturers by measuring the surface hardness values. Acrylic resin teeth from different manufacturers were included to this study (Optima Proxima, Acrystone, Ünay, Major, Ivostar, Bayer Optognth, Vitapan, Arma, Optima Prima, Optima, Samed Ultraplus ve Herasit). 96 acrylic resin teeth, 4 anterior 4 posterior teeth groups from 12 manufacturers, were embedded into clear acrylic blocks and the surfaces were prepared in terms of areas for the measurements. Vickers microhardness analyses method was used to measure the surface hardness. The measurements were repeated three times from different points for each specimen. In this study, the measured values were evaluated with non-parametric Kruskall Wallis varians analysis method and as a result it was determined that the difference in b etween the groups were significantly different ($KW=54.88$, $p<0.001$). The teeth groups, which had different values, were determined with the Multiple Comparison Test. According to this, Vitapan had the highest surface hardness where Optima had the lowest.

P 06

Comparison of mechanical strength of palatal plates made from various plastic materials

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The aim: The aim of the study was to compare the resistance to compression of palatal plates made of the acrylic Zhermacryl H Plus and SR Ivocap Plus and those made of the polyurethane Microbase.

Materials and Method: For the purpose of the study a model of an edentulous jaw was constructed, on the basis of which five palatal plates were made, each from the following materials: Zhermacryl H Plus (Zhermapol), SR Ivocap Plus (Ivoclar-Vivadent) and Microbase (Dentsply DeTrey), according to technologies of their polymerisation recommended by their manufacturers. The plates were kept in water at room temperature for 30 days before the mechanical tests. Compression resistance experiments were conducted using a Hounsfield H5KS machine.
Results: The greatest average resistance of 581N was found for Ivocap resin plates as compared to the average strength of 523N for plates made of Zhermacryl material while the lowest compression resistance of 193N was noted for plates made of Microbase. During the experiment other results of the maximal deformation of plates had been registered before they broke.
Conclusions: Application of acrylic resins using the injection-pressure method of polymerisation improves resistance parameters of dentures made from these materials. Alternative basic materials for the denture plates, in spite of the absence of harmful compounds such as monomer, show poorer mechanical properties as compared with polymethylometacrylans.

P 07

The effects of electric fields on oral mucosa cells

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Problem: Electrostatic voltages of up to 800 mV can occur between different dental alloys used for restoration of the dental arch. Patients concerned complain of BMS, glossodynia or altered sensations of taste. Acute and chronic changes to the oral mucosa are also associated with increased voltages between different dental alloys.
Aims of the study: In order to investigate the physiological reactions of the oral mucosa and changes of cells of the oral mucosa was developed a pseudo-realistic electric field device.
Materials and Method: Cell lines (UMSCC-14-C, Heidelberg cell bank, Germany) were exposed to voltages of 200 mV for a period of 24 hours. Following this, the cells were fixed and treated with the different antibodies and colouring agents to demonstrate metabolic changes: Keratin-14, Actin, Microtubuli, Ki-67, Dichlorofluorescein, NADPH-oxidase, Catalase, Superoxide-dismutase, Caspase-3, Poly-ADP-Ribose, and Polymerase. Immuno-histological findings and parameters were analysed using laser-scanning microscopy. Data was evaluated statistically with the help of the t-test.
Results: Electric fields of 200 mV caused a significant destruction of the cytoskeleton inside the cells associated with a reduced cell proliferation and a beginning apoptosis. The trigger for these manifold changes in cell metabolism was a significant ($p=0.0064$) increase in the reactive oxygen intermediates (ROI) caused by the activation of NADPH-oxidase. Cellular defence mechanisms such as Superoxide-dismutase and Catalase were increased.
Conclusion: Electrostatic potentials of 200 mV stimulate reactive oxygen intermediates that inhibit cell proliferation and act as the trigger for cell apoptosis. Since cellular defence mechanisms are activated only to an inadequate degree, cells cannot be protected against irreversible damage.

P 08

Some corrosion properties of dental alloys

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The aim of this study was to evaluate and compare, in vitro, galvanic corrosion behavior of four different dental alloys in artificial saliva.
Materials and Method: The alloys examined were silver-palladium, Germadent, G-Weich and Titanium as samples impland. The corrosion properties of each alloy were studied in isolation and in combination with one other alloy. In isolation the properties analyzed were: the open-circuit potential (OCP); the corrosion potential (Ecorr); and theorrosion current (Icorr) in the pairs the EMF was analyzed. The method used for the experiment was an initial polarization of the individual alloy from -1V to +1V and again from -1 to +1 and then back again to -1. A current free potentiometric process was then applied to each alloy for six hours at a temperature of 370C. To check the final results a current based cyclingvoltametric method was utilized.
Results: The OCP, Ecorr and Icorr for Titanium was : 0,200V, 0,071V, 1,671*10-6A/cm ^{2} respectively. For Germadent: 0,192V, 0,098V, 1,746*10-6A/cm^2, and for G-Weich: 0,055V, 0,100V, 3,751*10-6

A/cm^2 to. Analyzing the EMF between bimetallic cell, in the case of silver palladium, the large initial polarization was due to surface durability. After a period of 6 hours the polarization had reacher equilibrium at a lower level. The results were checked twice at 3 day periods after the initial polarization and cycling voltammetry and the OCP, Ecorr, and I corr were 0,212V, 0,066V, 1,314*10-5A/cm^2 respectively. However following this
the -1V polarization showed and OCP, Ecorr and Icorr was: 0,097V, 0,005V, 3,789*10-6A/cm^2. Finally the EMF was examinated for 2 silver-palladium alloys, after different initial polarizations to +1 and to -1V 0,147V and 0,107V respectively.
Conclusions: On analyzing the result, it can be seen that the first polarization of the bioalloys is the key factor and when we prepare the alloys the initial durability to surface changes must be considered as it is the cause of the differences in OCP and the cause of thecreation of a galvanic current where one should not exist

P 09
Measurement of ion release from dental ceramics
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Dental ceramics are generally considered to be chemically inert materials. However, characteristics of one dental ceramic are not necessarily present in other dental ceramics. The aim of this study was to test the elution of sodium, potassium, magnesium, silicon and aluminum ions from four dental ceramics after 16 hours of immersion in the acetic acid solution, according to ISO Standard 6872 method. Elution was determined using the atomic absorption spectrophotometer and UV/VIS spectrophotometer. The results showed the highest leaching of the ions from IPS-Classic ceramic specimens and the lowest from the
IPS-Empress 2 ceramic specimens. The release of the ions from the analysed specimens did not correlated to their contents as declared by the manufacturers. It can be concluded that the measured release of ions is not significant and correlates well with the data from the literature linked with glass corrosion, that is, silicate-based dental ceramics.

P 10
Fourier transformation infrared spectrosopic (FTIR) evaluation of silane and phosphate acrylate adhesion promoters
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Introduction: Adhesion in dental applications for dissimilar materials must usually be promoted with coupling agents. Silane coupling agents are most known and used primers for porcelain repair, but some new approaches has been introduced in the market. Shortcomings for a silane bonding system might be its hydrolytic in stability. There is not much published information, how these bonding agents are activated.
This might be clinically important to know.
Aim of study was to evaluate the key chemical reactions of a pre-hydrolyzed silane (MPS) in a dimethacrylate medium (Porceline Bond Activator) and a two-bottle, chair-side activated silane + phosphate (Clearfill SE Primer).
Materials and Method: A commercial pre-hydrolyzed silane coupling agent and commercial two-bottle silane + phosphate primer were compared.
Results: The FTIR spectral analysis suggested that pre-hydrolyzed silane does not show significant differences during the drying time. The phosphate based bonding agent activates within an expected clinically relevant time.
Conclusion: In clinical conditions coupling agents are in the active form, when used in a proper way and should be used within the suggested time period.

P 11
Effect of bonder apilication methods on titanium-ceramic bonding
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Introduction: In the titanium-ceramic system, bonder ceramic is necessary to improve the bond strength. Bonder ceramic has an important influence on the formation of reaction layers as ceramics are fused to titanium at firing temperatures. It should be applied a thin layer on the titanium surface to optimize titanium-ceramic bonding. In general, manufacturers recommend the application of bonder with a glass instrument or a brush.
Aim of the study: Aim of this study was to evaluate the influence of two different application methods of bonder ceramic on the bond strength.
Materials and Method: Two ceramics (Initial Ti, GC, Japan and Triceram, Dentaurum, Germany) were fused to machined titanium strips (cp titanium grade 2). Each ceramic was
applied with two different bonder application methods: extreme thin layered with a fine brush and conventionally layered with a glass instrument. Three point crack initiation test according to ISO 9693 was performed to examine the bond strength (n=10). Results were analyzed using t-tests ($p<0.05$).
Results: The bond strengths (standard dev.) of Triceram were similar respectively in two methods : 29.5 MPa (2.8 MPa) with a fine brush and 30.5 MPa (1.2 MPa) with a glass instrument. However, the bond strengths of Initial Ti varied considerably in both methods: 36.7 MPa (4.5 MPa) with a fine brush and 59.5 MPa (3.5 MPa) with a glass instrument.
Conclusion: In Initial Ti the application methods significantly influenced the bond strength values. In this case a glass instrument promoted optimal thickness of the bonder to enhance the titanium-ceramic binding. There is also significant difference in bond strength between two ceramics, especially in the group layered with glass instrument.

P 12

Fiber-reinforced composite resin periodontal splints in periodontally reduced patients

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The aim of this present study is to evaluate clinical success of FRC periodontal splint on mobility scores of teeth in 5 patients with reduced periodontal support. The patients were selected according to these criters: Loss of more than 50% of supporting bone, minimum 2 mobility score, good oral hygen level. Plaque and gingival indexes, pocket depths and mobility scores were taken before treatment. The patients who have loss of more than 50% of supporting bone were selected. Patients were treated by FRC periodontal splint following the periodontal threapy. After isolation, teeth were polished, a continuous cavity of approximately 1,5 mm in depth and width was prepared on the lingual side of all teeth. Both dentin and enamel surfaces were etched with 37% orthophosphoric acid, rinsed and dried.
A thin layer of adhesive resin was applied on etched surfaces. Six pieces of fibers were cut in the actual length of the cavity, precut pieces were soaked in bonding resin, placed in the cavity layer by layer and each fiber piece was light polymerized for 40 s with a conventional polymerizing light unit. The reinforced pieces were covered with a hybrid restorative composite resin to increase wear resistance. After selective grinding the surfaces were polished. Maintenance threapy were repeated every 3 months period at the same time plaque, gingival indexes, pocket depths and mobility scores were evaluated. The follow up procedure was evaluated in the means of average treatment period.

P 13

The determination of colour changes in three types of veneer materials

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Introduction: The colour stability of the veneer materials is one of the most important properties due to aesthetic reasons.The colour change is complex process caused by various reasons, thermal shocks and chemical stress being the most significant.
Materials and Method: Thermal shocks and chemical stress were modelled by thermal cycling (ISO /TR11405 and soaking in artificial saliva, respectively. The testing discs 10mm in diameter were made from alloy Wiron and than veneered with the three types of materials – ceramics, C&B and

composite. The layer thickness was one millimetre. Four testing and one control discs were made and measured in four points before and after every experiment. The colour was determined by purpose-designed instrument consisting of fibre optic spectrophotometer S 2000 with xenon light source XE 2000 and reflectance probe FCR 7 UV 200-2- ME. The probe was mounted into the microscope holder. The longitudinal axis of the probe was deviated 8 degrees from vertical to avoid direct reflection from the polished surface of the sample.The special software was programmed in Lab View 5.0 to control
spectrometer and to calculate XYZ and Lab values for two degrees observer (CIE Lab 1932). Delta E was calculated by formula delta E CIE 1976. All samples were measured in four points and five measurements were taken from each point.
Results: The delta E values were significantly different for all materials after thermal cycling (CB 3.4, ceramics 1.2, composite 2.44). The significant difference was found in ceramics and composite after chemical stress (ceramics 0.8, composite 2.7).
Conclusions: The designed instrument was found suitable for above described experiments. Obtained results correspond with clinical experience.

P 14
Color stability of porcelain repair materials with accelerated aging
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The purpose of this study was to measure and compare the color stability of three porcelain repair materials (Charizma, Clearfil and Silux Plus) with an all-ceramic material following accelerated aging. Three composites and one ceramic control were subjected to accelerated aging for a period of 300 hours. Initial specimen color parameters were determined in the Commission International de l'Eclairage Lab (CIELAB) color order system with a colorimeter. Color changes were calculated before (?E) and after 300 hours of accelerated aging (?E*). Color difference data were subjected to One-way analysis of variance ANOVA followed by Duncan's test to examine the interaction between material and time interval of aging.
There were no significant defference between ?L values of Porcelain-Charizma and There were no significant defference between ?L values of Porcelain-Charizma and Porcelain-Silux Plus.AII mean ?L* values were negative after 300 hours aging. Porcelain-Silux Plus demonstrated the highest ?L* of the investigated groups. There were significant differences between baseline 300 hour aged specimens with respect to ?a*, ?a for either of the investigated materials. For Silux Plus, ?a and ?a* values were significantly higher than the others. Significant differences were observed between baseline and 300 hour values for ?b and ?b*. ?b and ?b* values were significantly higher for Silux Plus.
There were significant differences between baseline and 300 hour values of color difference, ?E, ?E*. Highest ?E* value was obtained in microfilled composite, Silux Plus. Lowest value of ?E was recorded in hybrid composite, Charizma.

P 15
Different applications of all ceramic at the three cases
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Introduction: Metal-ceramic restorations have been popular in fixed prosthodontics. The success of metal-ceramic restoration is based on their clinical longevity and acceptable esthetics. However, metal-ceramic restorations consist of a metal substructure veneered with a porcelain superstructure. The metal substructure is opaque and does not duplicate the inherent translucency of natural teeth. In addition, allergic and toxic side effects of metal alloys are disadvantages. Numerous attempts have been made to develop all-ceramic systems that eliminate metal infrastructures and provide optimal distribution of reflected light. The translucency provided by the restoration allows light transmission through the underlying tooth, which minimizesgingival shadowing and yields an appearance of vitality. The clinical results of these systems have been less than favorable compared with metalceramic restorations.
Aim of the presentation: In this presentation, one type of all ceramic that were applied to three cases will be presented.
Case description and the treatment carried out: In the first case; a patient with missing maxillary left and right lateral incisors was rehabilitated with all ceramic restorations. In the second case; a patient with enamel abrasion due to wrong brushing in maxillary anterior right-left central and lateral incisor

teeth was rehabilitated with all ceramic laminate veneer restorations. In addition; left first premolar which was present loss of the excessive structure
as rehabilitated with all ceramic inlay restoration in the same patient. In the third case; patient with missing maxillary left santral incisor was rehabilitated with all ceramic bridge.
Patient progress: The all ceramic restorations were satisfactory both esthetically and functionally at the end of routine follow-up.

P 16

A comparative in vitro trial of porcelain and acrylic resin restoration surfaces for esthetic orthodontic bonding: Part I: Composite bracket bonding

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The effect of orthodontic bonding of composite brackets on porcelain and acrylic resin surfaces were evaluated and compared in vitro. For this purpose, composite brackets were bonded to each surface by two different adhesive separately (light-cure and no-mix adhesives). Tensile bond strengths and surface effects were evaluated. Data were analyzed by one-way analysis of variance and Duncan Multiple Comparison Test. It was declared from the analysis of variance findings that there were significant surface and adhesive effect. The highest bond strength values were achieved with light-cure adhesive on acrylic resin surface. On the other hand, the lowest bond strength values were achieved with light-cure adhesive on porcelain surface. The scanning electron microscope revealed that the porcelain surfaces didn't display any cracks or fracture. But acrylic resin samples particularly bonded by light-cure adhesive showed some cracks.

P17

A comparative in vitro trial of porcelain and acrylic resin surfaces for esthetic orthodontic bonding: Part II: Ceramic bracket bonding

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The effect of orthodontic bonding of ceramic brackets on porcelain and acrylic resin surfaces were evaluated and compared in vitro. For this purpose, ceramic brackets were bonded to each surface by two different adhesive separately (light-cure and no-mix adhesives). Tensile bond strengths and surface effects were evaluated. One-way analysis of variance and Duncan Multiple Comparison Test analyzed data. It was declared from the analysis of variance findings that there were significant surface effects. The highest bond strength values were achieved with light-cure adhesive on acrylic resin surface. On the other hand, the lowest bond strength values were achieved with light-cure adhesive on porcelain surface. The scanning electron microscope revealed that the porcelain surfaces didn't display any cracks or fracture. But acrylic resin samples particularly bonded by light-cure adhesive showed some cracks.

P 18

Analysis of dentinal stress distribution of maxillary central incisor subjected to various post-and-core applications

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The purpose of this study was to investigate the stress distribution on an endodontically treated maxillary central incisor restored with different post-and-core systems by using a 3-dimensional finite element analysis model. Seven 3-dimensional finite element models were created. Each model was contained cortical bone, cancellous bone, periodontal ligament, 3mm apical root filling, post-and-core,

and all-ceramic crowns. Two different prefabricated zirconia ceramic post systems, glass-fiber reinforced post system and titanium post system were modelled. As a control, an all-ceramic crown on an endodontically treated tooth without
a post-and-core was modelled. Each model received a 135° oblique occlusal load at a constant intensity of 100 N. In each model, the ratio of von mises stress distribution was compared. The greatest stresses were observed in the coronal third of the roots on facial surfaces. Ratio's of von mises stress distribution in dentin for zirconia ceramic post (CosmoPost) and ceramic core (Cosmo Ingot), zirconia ceramic post (CosmoPost) and composite core (Tetric Ceram), glass-fiber reinforced post (FRC Postec) and composite core (Tetric Ceram), titanium post (Er post) and composite core (Tetric Ceram), zirconia ceramic post (Cerapost) and ceramic core (Cosmo Ingot), zirconia ceramic post (Cerapost) and composite core (Tetric Ceram), and control group were 0.886, 0.889, 0.988, 0.924, 0.889, 0.893, 1 respectively. Within the limitations of this study, the use of posts decreased the dentinal stress concentration in endodontically treated teeth. Stress concentrations in dentin created by two different zirconia ceramic post systems were same. Zirconia ceramic post systems created less stress concentration in dentin than glass-fiber reinforced post and titanium post.

P 19

Effect of composite and ceramic thickness on hardening of dual-cured resin cements

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Adequate cure of the resin-based cement is an important prerequisite for the stability and bio-compatibility of the restoration. Dual-cure resin luting cements polymerize both chemically and through light activation; however, clinically some aspects of the cement are not readily accessiable to the light source. Composite resin or ceramic inlays reduce the amount of the light reaching the bottom of the cavity and therefore compromise photo-activation of the luting material. This study investigated the effect of composite and ceramic inlay thickness on polymerization hardness of five dual-cure resin cements. Discs 8x1mm were prepared from five commercially available dual-cure resin luting cements; 3M Opal, Calibra, Nexus, Variolink II, Panavia-F, totally 100 specimens were prepared. Half of the specimens were dual-cured through resin composite spacers of varying in thicknesses from 1mm to 5mm and the other half were cured through similar thickness of ceramic spacers, and Knoop hardness measurements were then recorded at 1 hour, 24 hour, and 1 week intervals. Specimens cured through composite resin spacers showed less hardness values than ceramic spacers with increasing thickness of the spacer ($p<0.05$). Multivariate analysis of variance revealed significant difference in hardness of specimens dual-cured through ceramic or resin composite when the spacer thickness was more than 3mm. Also increasing thickness of the spacers produced a statistically decrease in microhardness of the resin based cements at the 5% level of significance. The polymerization potential of five commercially available dual-cure cements was found to vary greatly with brand.

P 20

Shear bond strength of two composite core materials after using all-in-one and single-bottle dentin adhesives

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Introduction: All-in-one bonding systems have recently been developed in an effort to simplify and shorten bonding procedures.
Purpose: The purpose of this study was to compare the shear bond strengths of two different composite core materials after using all-in-one and single-bottle dentin bonding materials.
Materials and method: The occlusal surfaces of 100 extracted, intact human third molars were ground to expose a flattened area of dentin and polished with 600-grit silicon carbide paper. Specimens were divided into five main groups (n=20). Three all-in-one (AQ Bond, One-Up Bond, Xeno-CF Bond) and two single-bottle adhesives (Single Bond, One-Step Plus) were used. Each group was further divided into 2 subgroups, Ti-Core and Built-it F.R. core materials were applied using a translucent plastic ring (diameter: 3mm / height: 5mm). After storage in 37°C water for 24 hours, shear bond strengths were

measured using a Universal testing machine with a crosshead speed of 0.5 mm/minute. Debonded dentin surfaces were
examined with SEM.Two-way analysis of variance (ANOVA) and multiple comparison (Tukey) tests were used for statistical analysis of data.
Results: Two-way ANOVA revealed that the type of core material not significantly influenced the shear bond strength ($p>0.05$), whereas there were significant differences in shear bond strength among the types of bonding agents ($p<0.0001$). Shear bond strengths for single-bottle adhesive systems were significantly higher than those for all-in-one adhesive systems ($p<0.05$). Furthermore, the interaction of these two parameters was not significant ($p>0.05$). The fracture modes were predominantly adhesive for all-in-one adhesives and cohesive for single-bottle adhesives.
Conclusion: Bonding of composite core materials with the new developed all-in-one dentin adhesives produced lower shear bond strengths compared to single-bottle adhesives.

P 21
Influence of desensitizing agents on retention of crowns cemented with various luting agents
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Purpose: This in vitro study evaluated the effect of three different desensitizing agents on the retentive strengths of three different luting cements using standardized tooth preparation and crown fabrication.
Materials and Method: Eighty four extracted intact mandibular premolars were prepared for a standardized crown preparation with a flat occlusal surface,
28 degree taper and 5mm axial length using a pantograph. Standardized wax patterns were fabricated using an injection molding technique and were cast with a base metal alloy (Wiron 99). The desensitizing agents selected for this study were: no treatment (control), two fluoride based materials (Aquaflour and Bifluorid 12) and a polymerizable resin based material (Seal&Protect). Seven castings in 12 subgroups were luted with polycarboxylate, glass ionomer and resin cements. After the storage in water at room temperature for 24 hours, cemented castings were removed along the path of insertion with a universal testing machine at a crosshead speed of 0.5mm / min. The results were statistically evaluated with one-way and two-way analysis of variance and Tukey test at the $p<0.05$ level of significance.
Results: For the polycarboxylate and glass ionomer cements, the highest mean retentive strength was recorded in untreated groups at 1.74 MPa and 1.20 MPa respectively. For these cements, all desensitizing agents resulted a significant decrease in retention ($p<0.0001$), whereas samples treated with Aquaflour and Bifluorid did not differ from each other. However, the retentive strength of resin cement was improved from 1.36 MPa to 1.82 MPa with Seal&Protect treatment.
Conclusion: The relative retentive strength of luting cements without desensitizer was polycarboxylate cement >resin cement >glass ionomer cement. The use of fluoride based desensitizer reduced retentive strengths of polycarboxylate, glass ionomer andresin cements. When using resin cement, the use of a desensitizing agent capable of polymerizing to the cement provided thegreatest retentive strength.

P 22
The accuracy of composite resin provisional crowns
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Introduction: The most important requirement for a provisional restoration is suitable marginal adaptation.
Purpose: The purpose of this study was to compare the efficiency of the relining and venting hole procedures on the marginal accuracy of the provisional crowns made with bis-acryl composite resin material.
Materials and Method: 36 provisional complete crowns were fabricated on prepared molar-shaped dies with a direct technique by using a polyvinylsiloxane impression as a matrix. The crowns were divided into 3 groups (n=12). In group I relining, in group II relining + venting hole procedures were used, group III served as control. All provisional crowns were cemented with zinc oxide eugenol temporary cement with a cementing force of 5kg for 5 minutes. The
crowns were embedded in epoxy resin and sectioned in the vestibulo-lingual direction. A profile microscope was used to measure vertical, horizantal and marginal discrepancies. Data were analyzed with two-way Anova and Tukey multiple comparison tests (a=0.05).

Results: Significantly lower vertical discrepancies were measured for relining + venting hole group compared to relining and control groups ($p<0.05$). In the horizontal discrepancy, no significant differences ($p>0.05$) were detected between the relining + venting hole and relining groups, but a significant difference ($p<0.05$) was found between the relining + venting hole and control groups. Regarding to the marginal discrepancy, relining + venting hole produced significantly lower values than relining and control groups ($p<0.05$).
Conclusion: Relining + venting hole procedures provides a significantly greater benefit in reducing horizontal, vertical and marginal discrepancies of provisional restorations made with bis-acryl composite resin material.

P 23
Metal-ceramic dowel-core restoration to severely damaged tooth: A case report
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Post and cores are used in the reconstruction of coronal structure loss due to caries, fracture or endodontic abcess. The post size and shape, the final preparation design of the tooth and the kind of luting agent used influence tooth resistance. On the other hand, ceramic onlays have become an important treatment modality in modern dental practice because of the increased demand for esthetic posterior restorations. In this pilot study the objective was to overcome the posterior es thetic problems and to regain molar support by combining post-core and onlay techniques. Prior to the construction of the restoration, endodontic treatment was completed. Preparations of the root canals were made according to the technique described by Shillingburg, Fisher and Dewhirst. The posts and the coronal metal base were first made by direct technique with a special hard wax, then cast by dental gold alloy. Later porcelain was applied over the post-core system. Then the assembly was adapted intraorally and cemented via resin-bonding cement. Using a metal-ceramic one piece dowel-crown, the sound cemento-enamel junction was preserved and by the overlying ceramic on the metal base esthetics was highly provided.

P 24
Fracture behaviour of endodontically treated premolars with and without post
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Introduction: The question whether posts can stabilise roots or not is not sufficiently clarified.
Aim of the study: The aim was to analyse the influence of different restorations with or without posts on the fracture resistance of endodontically treated and reconstructed premolars.
Methods: 30 extracted lower premolars were restored with six different methods: mod-composite filling (CF) (Admira, Voco, Germany), Ti-post (ER, Komet, Germany) with composite core and full metal crown (PCC-MC), partial metal crown (PMC), Ti-post with cast metal core and metal crown (PMC-MC), ceramic endo-crown (CEC) (Wolceram), ceramic inlay (CI). The teeth were stressed by thermo-cycling (5000 times; 5°C-55°C), embedded in a pseudo-realistic model and subjected to a long-term occlusal loading procedure (30.000 cycles; 50 N at random in axial and in both 45° oral and vestibular direction). Following this, the teeth were fractured by a Zwick device (45° vestibular direction, feed rate 1mm/min). Fracture resistance and fracture line were determined.
Results: The mean values of fracture resistance were: CF (1021±110 N), PCC-MC (873±201 N), PMC (1040±67 N), PMC -MC (586±82 N), EC (823±192 N), CI (839±350 N). One-way ANOVA ? = 0.05, Post hoc test according to Fisher's PLSD) revealed significant differences between CF/PMC-MC ($p=0.002$), PMC/ PMC-MC ($p= 0.001$), CI/ PMC-MC ($p=0.050$) and PCC-MC/ PMC-MC ($p= 0.027$). Statistical analysis also shows significantly differences for the location of the fracture line. Teeth restored with posts fractured in the middle of the root and without posts in neck region.
Conclusions: Metal post with cast core reconstructions show significantly decreased fracture resistance compared to all other restorative measures of the teeth studied.

P 25
Frequency of post endodontic post-core applications in a university hospital
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Purpose: The aim of this study was to determine the frequencies of cast or prefabricated post-core applications on endodontically treated teeth and discuss the treatment choice criteria.

Materials and Method: This retrospective study was performed on data obtained from Hacettepe University Faculty of Dentistry archives. A total of 2724 cases that were treated in a 6 month period, each representing an endodontically treated tooth belonging to different patients of different age and sex were included in the study.
Results : A post core restoration was made to 319 of 1533 maxillary teeth while this value was 194 of the 1191 for the mandible. The total frequency for post-core restorations for endodontically treated teeth was 18,83%.

P 26
Evaluation of factors affecting the survival of endodontically treated teeth restored with various esthetic post systems
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The longevity of endodontically treated teeth has been greatly enhanced by continuing developments made in endodontic, restorative and prosthetic procedures. A large number of endodontically treated and structurally compromised teeth are restored to their original function with the use of different post systems. However, the duplication of the optical characteristics of natural teeth, including translucency, shade and fluorescence, is often difficult because of metal infrastructures. The development of reinforced ceramics and non- metallic post systems made possible the use of metal-free esthetic post systems. Post canal preparation, post design and bonding ability are among the main factors influencing the post selection. The selection of post design may have an influence on the longevity of the restored teeth. The surface characteristics of the post also change the retentive and fracture resistance values. The bonding ability is directly affected by light curing method and type of adhesive luting cement used. Bonding of a post to tooth structure should improve the prognosis of the post- core restored teeth by increasing retention and reinforcing the tooth structure. This poster presentation reviews the above-mentioned basic variables, affecting the successful treatment of endodontically treated teeth with the newly developed esthetic post systems.

P 27
A review on the treatment of structurally compromised teeth using different prefabricated esthetic post systems
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Treatment could in many respects be considered analogous with prosthetic treatment of structurally severely damaged teeth. However with such a wide variety of materials and post designs available, the clinician should be selective in choosing the post system that best fits the individual needs of each tooth. Two main groups of prefabricated posts of different materials have been introduced to the market: metallic posts and non-metallic posts. Zirconium ceramic posts have been introduced for the fabrication of post and cores as they have higher strength and fracture toughness than other ceramics. Ceramic posts offer potential advantages with respect to esthetics and biocompatibility, but they are not yet available in small diameters and the strength of a tooth is directly related to the amount of remaining tooth structure. In fiber-reinforced root canal posts, the fibers contribute stiffness and strength to the usually elastic matrix; the mechanical properties of fiber-reinforced composite materials depend on the type of fibers (carbon, glass, quartz), fiber content, and direction of fibers. It has been reported that fiber reinforced posts with a low modulus of
elasticity usually results with reparable technical failures. Retention of posts to the root canal dentin is also a complex expression of a multitude of factors such as the bond of the cement to the post and root canal, mechanical properties of the post and cement, and surface structure and shape of the post. This poster presentation reviews the restoration and survival of structurally compromised endodontically treated teeth regarding the type of esthetic post systems used.

P 28
An esthetic and conservative treatment alternative: All-ceramic adhesive fixed partial denture
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Minimally invasive approaches have gained widespread acceptance in regard to the advances in dental ceramic technology and adhesive techniques. On the other hand a restoration should provide

satisfactory strength, function and esthetic together with an excellent biocompatibility in today's dentistry.
This poster presentation reports one of the up-to-date choices in fabricating a metal-free all-ceramic inlay-retained fixed partial denture. A 58-year-old-woman referred with a missing maxillary left second premolar and also presented occlusal caries on maxillary left first molar and distoocclusal caries on first premolar. Following the removal of the existing caries, the preparation of the abutment teeth were performed, silicone impressions were made and the resin patterns were fabricated on the master model. The resin pattern was then mounted to the copying chamber of the Celay machine (Mikrona AG, Spreitenbach, Switzerland), the pattern was surface traced and copied in a ceramic block (Vita, Bad Sackingen, Germany). The final all-ceramic fixed partial denture was checked for the accuracy of fit in the mouth and was cemented with an adhesive bonding technique. Adhesive cementation could offer one of the most effective ways of countering the loss of retention, which is one of the most frequent causes of failure of conventional inlay-retained fixed partial dentures. The use of all-ceramic inlay-retained adhesive fixed prosthesis has been proposed as an effective treatment modality in similar cases with the advantage of conservative preparation, excellent esthetics and also providing the patient a satisfactory longevity and function.

P 29

A different pontic design for fibre reinforced composite bridgeworks: A case report

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Application of the classical techniques for the replacement of an anterior single tooth may be restricted due to such factors; patients priorities, financial problems, size of the gap and selection of technique and material depending on its properties. Among the many kinds of adhesive bridges, the glass fibre reinforced composite fixed dentures can be considered as a treatment of choice in many clinical situations. It is obvious that application of the minimally invasive technique to complete the restoration through minimum or no preparation on neighbouring sound teeth is the most preferable. Dental implants or adhesive techniques can be used in such applications. Fibre applications are an alternative treatment in adhesive techniques. The prosthetic restoration which was prepared using fibre reinforced composite bridgework with a full ceramic (Empress II) pontic design for a referred patient with maxillary left canine tooth missing, who has demanded a restorative solution without any invasiv applications, but was not satisfied with esthetic appearance of the metal supported maryland type bridge, is presented as a case report. Inspite of the fact that, clinical examinations on glass fibres include relatively short term results, they are very promising. The reconstructions can be repaired, refurbished and refinished. The system is metal free and biocompatible, which, patients find more acceptable. As they are not only an alternative treatment opton but also provide us shortened treatment sessions.

P 30

Fibre-reinforced composite post application: Case reports

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An important retention problem may occur owing to the loss of tooth substance in crown applications to endodontically treated teeth exhibiting advanced crown damage.
A structural weakness resulting from root-canal treatment may also exist in the endodontically treated tooth. A more suitable treatment substructure can be prepared by post core applications, which various post systems are inserted into the root canals of endodontically treated teeth. Fibre-reinforced composite posts are also used for this purpose. The developments in fibre-reinforced composite posts in the last decade have resulted in an increase of related applications. The potential of fibres to enhance the flexibility of the material that they are combined with, has increased the advantages of fibre posts particularly over rigid post systems. Two patients have referred to our clinic after their root canal treatments were finished. One of the patients with his maxillary left central incisor and the other one with his mandibulary right second premolar were treated with fibre-reinforced composite post-cores, followed by a porcelain-fused-to metal crowns. The adaptability of fibre-reinforced composite post to the anatomical shape of root canal easily was highly advantageous. Therefore, it became possible for us to fabricate a post which accurately fits to the root canal and a better substructure and retention could be provided to the porcelain crown by the composite core.

P 31

Fiber application in intraoral porcelain repair

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Porcelain fused to metal fixed restorations with superior clinical properties have been widely used in restorative dentistry. However, occasional fractures resulting from the brittle nature of the porcelain material may leave the dentists and their patients in unpleasant situations. As an alternative to replacing the restoration, new material and techniques have been introduced where the fractured restoration could be intraorally repaired using composite resin. In more severe fractures exposing theunderlying metal framework, bonding of the repair material to fracture surface may become compromised. Repair material can be reinforced with glass fibers in such instances.
This study presents a fiber reinforced intraoral porcelain repair which had been applied on a fractured multi-unit fixed partial restoration with metal framework exposed. With recent developments in adhesive techniques and composite resin applications, intraoral porcelain repair methods provide a simple, repeatable, stronger and effective treatment alternative, especially when a glass fiber reinforced application is used.

P 32

Fixed partial dentures with different all-ceramic materials: Case report

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Dental ceramics are appreciated as highly esthetic restorative materials with optimal esthetic properties that better simulate the appearance of natural dentititon. Other desirable characteristics include translucence, fluorescence, chemical stability, biocompatibility, high compressive strength and a coefficient of thermal expansion similar to that of tooth structure. However rather low mechanical strength is a problem. Dental ceramics have been strengthened by metal bonding and by adding microcrystalline phase to the glass matrix. Currently, all-ceramic systems strengthened with microcrystalline phases are suitable for anterior and premolar single crowns. In these clinical patients with anterior tooth loss because of periodontal and congenital reasons, were treated with FixedPartial dentures (FPD). Female patient (30) with congenital lateral and canin tooth loss referred for treatment. In other patient, because of unsatisfactory apical resection, central incisor was extracted. On both, to have better esthetics in anterior region all-ceramic FPD's made of two different reinforced all-
ceramics (In-ceram Zirconia, Empress 2) are preferred. At the end of 1 year clinical observation period, it was evaluated that the restorations were in function with satisfaction.

P 33

Shade selection: Colorimetric instrument compared with a conventional shade guide

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Introduction: The ability of the restorative dentist to select and communicate an acceptable tooth color to a dental laboratory remains a challenge. Although several colorimeters have been suggested and used for objective and accurate measuring of tooth color they have rarely been used for research purposes.
Aim of the study: The aim of this study was to compare and evaluate color matching ability of instrumental colorimetry with a conventional visual color matching technique.
Materials and Method: Three dentists with normal color vision used a Vita Classical shade guide to determine the shade of the maxillary right central incisors of 10 randomly chosen subjects Tooth color of the same teeth was then determined with the ShadeVision colorimeter. The examiners were blinded to each others visual shade selection and colorimetric readings. Selected shades were assigned numeric ?E* values for data compilation and statistical analysis. The degree of examiners reliability was determined using SPSS for Windows statistical software.
Results: The analysis of the data indicated a good overall interexaminer reliability for Vita Classical shade guide (intraclass correlation coefficient (ICC) value was .6886). The statistical analysis revealed that the overall reliability coefficient for the examiners using the colorimeter was good (ICC value was .6211). Data showed poor correlation between shade selection using conventional visual assessment and colorimetric instrument (ICC value was .2729).
Conclusion: The results of this study have shown that there is no significant difference in shade selection using the conventional visual assessment or a colorimetric instrument. There was some

discrepancy in results between the shade guide and the colorimeter. The clinical relevance of these differences is unclear. Additional research is needed to determine the clinical adequacy of this colorimeter.

P 34
Strength assasment of an all-ceramic bridge with different loading patterns
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In a chewing cycle, there is a uniformity of complex forces applied on oral structures. Investigations on fixed partial dentures are often performed with single direction bite forces. These single direction loadings conceal the effects of inclined forces. The aim of this study is to determine the quantity and concentration of the stresses on an all-ceramic fixed partial denture,constituted by the multi-directional loading patterns.The effects of bite forces on ceramics were examined through a finite element model of a three unit bridge constructed by In-Ceram Zirconia all-ceramic system. Loads of 100 and 600 Newton were applied on the pontic, first perpendicular to the occlusal plane at the central fossa, then with a 45° angle to the sagittal plane at the buccal incline of palatinal cusp and at the palatal incline of buccal cusp. The maximum tensile stresses that appeared on ceramics were compared with 40% of the flexural strengths of the veneer and core ceramics. Tensile stresses revealed on materials were below the flexural strengths of ceramics when the models were loaded perpendicularly with 100 and 600 Newtons. The veneer ceramic was failed at 600 Newton angled loading on palatinal cusp. 600 Newton buccal cusp loadings did not cause any failure stresses. The results of this study revealed that perpendicular components of bite forces may not be responsible for the failure of the ceramics. The materials may fail at higher limits of intra-oral forces which originate from an inclined direction.

P 35
Effects of connector design on IPS-Empress II all-ceramic bridge
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Connectors are the stress concentration areas when a three unit all ceramic fixed partial denture is in function and they need to be constructed at a sufficient volume to withstand bite forces. The anatomic and physiologic features of the patients usually limit the size of connector cross-section area. The aim of this study was to evaluate the mechanical behavior of IPS Empress 2 all ceramic system with 2 different size of connector areas in a three unit posterior fixed prosthesis. The effects of loads on veneer and core ceramics of a three unit bridge were examined through 3 dimensional finite element models. Two models differed from each other only with the size of the connector cross-sectional areas. Model 1 has a 16mm^2 and Model 2 has a 9mm^2 connector area. Loads of 100 and 600 Newton were applied perpendicular to the occlusal plane at the central fossa of the pontic. The maximum tensile stresses that appeared on ceramics were compared with 40% of the flexural strengths of ceramics. Both of the all-ceramic bridges survived at 100 Newton. The veneer ceramic of Model 2 was failed at 600 Newton loading. Within the limitations of the study, all-ceramic system was found to be resistant to the average bite forces (100 Newton). At the higher forces, if the connector can not sufficiently be extended, failure at the veneer ceramic could be expected.

P 36
Restoring function and esthetics of patients with different demands: Case report
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The demand for all-ceramic restorations has increased substantially because of their esthetics and biocompatibility. The use of feldspatic and leucite-reinforced porcelain veneers has become common practice for the treatment of discolored and fractured teeth. Also with increasing development in adhesive materials, esthetic laminate veneers and all- ceramic crowns are commonly used. Two female patients who referred for treatment of attrition, discoloration and diastema are treated with laminate veneers (Empress 2) and all-ceramic crowns (In- Ceram Spinell). Another female patient unsatisfied with her old restorations required an esthetic appearence and all-ceramic crowns

(Empress 2) were made. The anterior porcelain laminate veneers and all-ceramic crowns were satisfactory both esthetically and functionally at the end1 year of clinical controls.

P 37

Fracture load of indirect composite veneers luted with two different adhesive systems

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Fracture is a clinical failure modality for indirect veneers. The adhesive system can affect the strength of indirect composite veneer. This in vitro study evaluated fracture load of indirect composite veneers, with 2 different adhesive systems, that were bonded on extracted human maxillary canines. 24 maxillary canines were randomly divided into 2 equal groups. Tooth preparations were done with buccal chamfer and incisal butt-joint finish lines. 0.8mm and 1.5mm tooth reductions were performed from buccal and incisal surfaces, respectively. Stone dies were fabricated and veneers were made from Heliosit(Vivadent) composite. Composite veneers were cemented by using a resin luting cement (Bifix QM, Voco) in combination with two different adhesive systems. A self-etching dentin adhesive (Unifil Bond, GC) and a conventional fourth generation dentin adhesive (Solobond Plus, Voco) were used as adhesive systems. Fracture loads were recorded with a mechanical testing machine at a crosshead speed of 0.5mm/min. The data was analyzed with ANOVA ($p<0.05$). Mean fracture loads of 9.28kgf and 13.89 kgf were recorded for Solobond Plus and Unifil Bond dentin adhesives, respectively. There was no statistically significant correlation between the fracture loads and the different adhesive system used. The mean fracture load value recorded for the self-etching primer system was comparable to the mean fracture load recorded for conventional multi-step fourth generation dentin adhesive.

P 38

Alternative restoration technique of extensively damaged teeth by use of adhesively inserted onlays

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Invention of new bonding techniques and materials have improved the bond strengths of dental ceramics to dentin such that they now approximate the bond strength of ceramic to enamel. The reliable bond of dental ceramics to both enamel and dentin greatly impacted preparation design, resulting in significant preservation of tooth structure by the use of all-ceramic bonded restorations for restoration of extensively damaged teeth. This clinical report describes the use of indirect bonded restorations for restoration of extensively damaged posterior teeth.
Case description: A 25 year-old female presented for treatment of an extensively damaged maxillary first molar vital tooth and a 36 year-old male patient p resented for treatment of an extensively damaged mandibular first molar nonvital tooth. After tooth preparation, silicon impression (Speedex; Coltene AG) casts were formed. An IPS Empress (Ivoclar) onlay was fabricated. After the onlay was evaluated for fit on the prepared tooth, it was luted with a resin cement (Variolink II high viscosity; Vivadent) in combination with a dentin adhesive (Syntac Classic; Vivadent) and a bonding agent (Heliobond; Vivadent). Two clinical treatments were presented in which a vital and a nonvital extensively damaged teeth were restored with adhesively inserted indirect onlays. This alternative treatment system proved to be advantegeous because the vitality of extensively damaged vital molar was preserved and application of post-core was avoided for restoration of nonvital tooth. Although this approach needs continued clinical evaluation to confirm its overall success rate as a conventional treatment technique, practioners should consider its use as an alternative to other restorative options.

P 39

Interdisciplinary approach for esthetic: A case report

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The maxillary canine has a long path of eruption and the frequency of its impaction is second only to that of third molars. It usually impacts palatally or buccally and the etiologies of these two types of impaction are quite different. This clinical report describes an interdisciplinary (orthodontic and prosthodontic) approach for the coordinated treatment of a patient diagnosed with unerupted canine, peg-shaped maxillary lateral incisors, diastemata, short clinical crowns and orthodontic malocclusion.

The patient's specific aesthetic expectations for the anterior maxilla were successfully met through phased treatment, including orthodontic tooth movement and direct composite laminate veneers. Such coordinated interdisciplinary evaluation and treatment are necessary for improved esthetic results in maxillary anterior areas esthetically compromised in several aspects.

P 40

Prosthetic treatment to the patients with bolton excess

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One of the aims in comprehensive orthodontic treatment is obtain ideal occlusion, over-bite and overjet. There are many factors that influence the attainability of this goal, one of which is the relationship of the total mesiodistal width of maxillary teeth to that of the mandibular teeth. A significant discrepancy in this relationship can be compensated for by several means including esthetic bonding, prosthetic recontouring, stripping of enamel, extraction, leaving spaces or changing the desired anterior overjet or overbite. The alternatives to not doing any of these may cause an undesirable result. The following case reports describe an orthodontic treatment of patient constricted maxilla bolton excess for whom final esthetic improvement was achieved by porcelain laminate veneers.

P 41

Adult Angle III and front crossbite prosthodontics treatment

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In practice, patients with congenital or habitual ortodontic distortions need a careful and precise treatment planning. Though the outcome of the long-term treatment is not always predictable the dentist has to make a decision.
The purpose of this case report was to show that a good treatment result of a primary orthodontic problem can be solved through a prosthodontic approach.The clinical examination of a 52 years old male revealed progenia and frontal crossbite without TMD. The patient came in our hospital because of aesthetic complains. Following diagnosis we started the treatment with occlusal splinting to make sure that the estimated new vertical dimension created by the new fixed prosthodontic restaurations will be tolerated by the TMJ. The second part of the treatment included the complete restauration of the upper and lower incisors by composite fillings. The new vertical dimension of the occlusion was tolerated by the patient without any symptoms and complains. As a conclusion can be stated that a proper functional prosthodontic treatment including the TMJ aspects may substitute the orthodontic treatment missed in early childhood.

P 42

Multidisciplinary approach to a partially edentulous patient

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23 years old woman who presented loss of upper left premolars, first and second molars, right upper canine, premolars, first and second molars, lower left and right first and second molars with the demand of implants and fixed prosthetic restorations was referred to Istanbul University Faculty of Dentistry. Due to loss of opposing occluding teeth many years earlier, right lower premolars were overerupted into the edentulous space to such an extent that without intervention, an implant or prosthesis could not be placed to restore the edentulous area. Right third molars were not in occlusion and nearly in contact with the opposing alveolar ridge. The treatment plan, with the patient's informed consent, was to orthodontically intrude the supererupted teeth with elastic traction from the braces and bands on the affected premolars and mesialization of the upper right third molar into a better intermaxillary occlusal relationship using anchorage bone screws. The objective was to increase the interarch space to allow dental restoration of the edentulous area without damaging the

overerupted teeth. Orthodontic levelling and aligning of all upper and lower teeth were performed and two anchorage bone screws 1.7mm in diameter and 11mm in length were placed under local anesthesia below the right lower premolars and used for intrusion while the last one was placed at the right upper premolar alveolar bone region used for mesialization of the upper right third molar with elastic traction. Alveolar corticotomy was also performed at the same operation on the distal-mesial, vestibulo-lingual or palatinal sites and below the root apices of these teeth to accelerate orthodontic tooth movement and bone response. After six months, orthodontic treatment was finished and anchorage screws were removed. Implants were placed under local anesthesia and after the healing period prosthetic restorations were done. Good occlusion, function and favorable esthetics were established with multidisciplinary approach.

P 43

Forced eruption before prosthodontic treatment: A case report

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Advanced caries, traumatic fracture, overzealous tooth preparation or lateral root perforation may cause inadequate tooth structure for prosthodontic restorations. The traditional method of treating the teeth with these problems is generally lengthening the clinical crown by periodontal surgery. The aim of this study is to present forced orthodontic eruption, an alternative to periodontal surgery for lengthening clinical crowns. A 22 years old, male patient came to our clinic with two upper central incisor fractures extending to the root under soft tissue. Firstly, endodontic treatments have done. In this case, to achieve a successful prosthodontic treatment with good esthetic results, we decided to extrude upper central incisors by orthodontic treatment. The orthodontic treatment has done with fixed appliance technique. Because of the deep fracture, the left central incisor was extracted. After 3 months, right central incisor was erupted approximately 3mm, resulting with an additional 2mm of sound tooth structure from the epithelial attachment. Then, the tooth was restored with a prefabricated post system and resin composite. Finally, a four unit fixed partial denture was made with a great esthetic results. The patient was controlled after
3 months. The function and esthetic were satisfactory.

P 44

Evaluating marginal fit quality by using biologically-oriented indexes

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Introduction**:** In the present paper the authors deal with marginal discrepancies that might occur in prosthetic therapy in case of fixed single tooth restorations with the view to not generate confusion concerning the marginal adjustment, as the terminology used by the literature in the field is quiet different and often contradictory. Then, the authors present the possible marginal fit situations that are clinically acceptable.
Aim of the study: Our paper has started from the working hypothesis that when enzymatically active changes of the acid and alkaline phosphatases, as well as the collagenases in the gingival fluid occur, they can be employed as markers of the degree of the gingival inflammation.
Materials and Method: Next, the authors present the method of clinical examination of the quality of marginal fit realized on a sample of 1000 teeth of 209 patients. The original clinical method presented in our paper uses the biologically-oriented indexes that take into consideration the gingival inflammation occurring with the presence of bacterial plaque in the areas of marginal discrepancies.
Results: Our research has proved that the periodontium does not give a specific answer to a certain type of material or cervical preparation. The key-factors are those that generate plaque accumulation in the juncture area: the quality of marginal fit, the correct axial moulding of the prosthesis and the smoothness of surfaces. Collagenases displays the highest degree of change because it is the enzyme most sensitive to gingival irritation.
In conclusion; the authors emphasize the importance of employing indexes based on an objective method of evaluating the degree of inflammation of periodontal tissues with the application of various types of single tooth preparations, illustrating their presentation with clinical cases.

P 45

Proisional luting cements and bond strength of adhesive systems

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Introduction: Previous studies about the effect of provisional cements on the bond strength of various adhesive bonding agents on dentin have equivocal conclusions.
Aim of the study: This study aimed to compare the micro-tensile bond strength (TBS) of different new generation adhesive systems on dentin which had been pretreated with various provisional cements.
Materials and Method: Flat dentin surfaces were created on extracted human third molars. They were coated with either an eugenol-containing or eugenol-free provisional cement. After keeping the specimens 24h at 37 °C, the provisional material was scaled off with a curette. Indirect composite overlays prepared were bonded to the deep coronal dentin using two different adhesive luting systems (Single Bond/RelyX ARC and Clearfil 2V/ Panavia). The teeth were sectioned occlusogingivally into a serial slabs which were further sectioned into 1.2x1.2 composite-dentin beams. Specimens were stressed to failure under tension using an universal testing machine at a crosshead speed of 1mm/minute. Dentin sides of fractured specimens were examined by a stereomicroscope (50x) to determine the mode of failure. Randomly selected samples from each group were further evaluated by scanning electron microscopy (SEM). Micro-tensile bond strengths were compared by by two-way ANOVA.
Results: The results revealed that provisional cements tend to lower the bond strength of adhesive bonding systems, means varying with the bonding agents tested and provisional cements applied.
Conclusion: It seems that besides other factors, clinicians should pay special attention to the type of the resin cement while bonding restorations to dentin pretreated with a provisional cement.

P 46

A comparison of the tests evaluating metal-porcelain bonding strength

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The aim of this study was to compare various test designs evaluating metal-porcelain bond strengths. Finite element stress analysis was performed to observe the location of the stresses originated from the test designs. 4 different mechanical test methods including
2 bending and 2 shear tests were chosen. The tests were performed by means of a Llyod Universal and a Testometric U 4000 test machines. The results revealed statistically significant differences between the values of 2 test machines in the bond strengths (MPa) and maximum force (N), which lead to failure of the samples. In terms of shear bond strength values, statistically significant differences were detected between the methods whereas no differences were found out between the values for the bending tests. The finite element analysis revealed severe stress concentrations at the edge of the porcelain-metal interface and shear bond strengths was found to be greater than tensile bond strengths. Finite element analysis also showed that shear bond tests demonstrated higher stress values than tensile tests and when circular interface shear test used the stresses concentrating at the metal-porcelain interface seemed to relatively decrease the tensile stresses within the porcelain. The following conclusions were withdrawn from the limitations of this study: The test methods used in this study caused different stress densities. There is no standard test design revealing correct numeric results therefore further studies need to be performed on standardisation.

P 47

Effects of surface treatment methods on bonding to base metals

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The aim of this study was to compare various test designs evaluating metal-porcelain bond strengths. Finite element stress analysis was performed to observe the location of the stresses originated from the test designs. 4 different mechanical test methods including
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P 48

Rehabilitation of an amelogenesis imperfecta patient: A clinical report

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Introduction: Amelogenesis imperfecta is a rare hereditary disorder that affects enamel on primary and permanent teeth. Extensive loss of tooth tissue, poor esthetics, and tooth sensitivity are the main clinical characteristics to be challenging the dental practitioner. Functional and cosmetic rehabilitation of such patients has been open to a variety of treatment options, among which c omplete-coverage restorations had been the most preferable treatment modality.
Aim of the presentation: The purpose of this treatment was to restore function and esthetics and to prevent tooth sensitivity of an amelogenesis imperfecta patient.
Case description and the treatment carried out: A 19-year-old male amelogenesis imperfecta patient with impaired self-esteem, presented with sensitive, discolored and mutilated teeth. Clinical examination revealed compromised occlusion and anterior open bite. C omplete-coverage porcelain-fused-to-metal fi xed restorations were the treatment of choice for this young man.
Patient progress: At the end of the treatment, function and esthetics were improved to a level acceptable to both the patient and the dental team. Short period clinical follow-up revealed no complications.

P 49

The alternative method of the construction of metal fused to porcelain crowns

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The purpose of this study was to describe an out-traditional alternative method of constructing a precise metal fused to porcelain that enables to directly generate of functional paths and to directly form of emergence profile and proximal contact placement that requires limited occlusal adjustment at the final seating and to evaluate during the thirty two months outcome of metal ceramic crowns fabricated with the developed technique. In this technique, metal frameworks were casted with the traditional technique. Ceramic superstructures were formed by the pressing technique. 11 upper and 10 lower molar teeth of the 21 cast metal-pressed ceramic crowns were inserted. It was not diagnosed that porcelain crack or fracture, colour change and bleeding of the gingiva during a period of 32 months.

P 50

Tooth preparation and biologic width: A clinical experience

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For long-term success of a restoration it is mandatory that a sound periodontal attachment be preserved. Plaque accumulation, marginal adaptation, crown contour, proximal design, surface structure, biologic width, host factors and hygienic aspect of the reconstruction are decisive for the health or disease of the periodontal tissue.
To minimize the risk of iatrogenic damage to the periodontium, the subgingival preparation and the design of the subgingival crown margins require special attention. The required controlled and tissue friendly hard tissue reduction, particularly in the intrasulcular area, can be facilitated by the use of special preparation diamond instruments with non-coated guide pin. As "horizontal distance keeper"

the guide pin assures a uniform depth of cut and a controlled reduction of the hard tooth substance without the risk of an over-preparation. Additionally, the guide pin acts as "vertical distance keeper" so that a defined distance to the periodontium can be ensured during intracrevicular preparation. This clinical presentation includes a step-by-step description of the preparation technique with diamond instruments with guide pin (a new instrument set). This case report is supported by the clinical data which is based on our observations over a period of 6 years.

P 51

The influence of medicaments in retraction cord on detail reproduction

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Introduction: The retraction cord is widely used to displace the gingival tissue and to minimize gingival hemorrhage and absorb crevicular fluid and/or blood. Many different medicaments such as aluminum chloride, aluminum sulfate, ferric sulfate, racemic epinephrine and sympathomimetic amines can be used. It is especially important when finishing line of preparation is in or close to the crevice because hydrophobic impression materials require dry environment for an acceptable impression. The impression material sustains contact with the medicament-impregnated or soaked in haemostatic agent retraction cord during impression or with the remains of these haemostatic agents, when the cord is taken away prior to impression.
Aim of the study: The purpose of this study is to determine the effect of these medicaments on surface detail reproduction. The following commercially available fluids and gel: ViscoStat, Racestyptine, Afrin, Visine and Gel-Cord were evaluated.
Materials and Method: First, the impressions were made of stainless steel metal die which had a horizontal line inscribed on its superior surface close to the groove where the retraction cord was placed. Impressions were made under dry and moist conditions. Polyvinylsiloxane–Express Penta H and Express light body as well as polyether–Impregum Penta and Impregum Soft were used as impression materials. Furthermore, the photographs of the samples were taken under x10 magnification. The depth of control line was measured on each sample by using profilometry. The data were statistically analyzed.
Results: The reproduction of control line both for the Express and the Impregum was influenced by medicaments which were delivered in gel – form. The texture of polyether was disturbed by using Racestyptine.

P 52

Dental management of the chronic vomiting patients: Two cases report

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Tooth wear or tooth surface loss is a general term used to denote the surface loss of dental hard tissues from causes other than developmental ones dental caries and trauma. Tooth wears varies in its etiology, severity, location and clinical presentation.Tooth wears has been subdivided into 3 categories: attrition, abrasion and erosion, usually based on etiologic factors and clinical manifestations. In many cases a combination of etiologic factors complicates the diagnosis and modifies the clinical apperance or pattern of tooth wear. Erosion is an irreversible process charecterized by mineral loss, unrelated to microbial environment and it may be secondary manifestation systemic illnesses. Chemical dissolution of tooth structure may be caused by diet, external sources common to industrial environments or internal sources such as regurgitation/ reflux or vomitting. The regurgitation may be involuntary or self induced as in bulimia nervosa.
Case description: Two patients (24 and 30 year old male) came Department of Prosthodontics with enamel erosion on the occlusal surfaces of their posterior teeth and the palatal surfaces of their maxillary anterior teeth. Patients' occlusions were evaluated both clinically and with mounted diagnostic models and a decreased vertical dimension secondary to enamel erosion was found. In dental treatment plan of these cases, firstly an occlusal splint was fabricated to establish vertical dimension. Than, temprorary crowns were fabricated and used to re-establish the vertical dimension and anterior guidance. In the last treatment phase porselain-fused-to metal crowns were constructed and used to permanently restore the dentition back to form and function.
In the follow up period the patients own appreciation of the prosthetic therapy was succesfull.

P 53

Optimal place for tissue harvesting for free subepitelial graft

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The aim of this study was to clinically determine the thickness of masticatory mucosa in the hard palate and tuberosity as potential donor sites for subepitelial autotransplatation tissue for moderate ridge augmentation procedures to achieve better aesthetics of the pontics of fixed partial dentures. In 102 periodontally healthy fully dentate subjects the masticatory thickness was assessed by bone sonding with a periodontal probe. Seventeen measurement points were defined, 15 on hard palate located on 3 lines running at different distances parallel to gingival margin and 2 on tuberosity. Data were analyzed to determine differences between gender, different body mass index groups and different shapes of hard palate, using t test and analysis of variance. The mucosa on the hard palate was significantly thicker than on the tuberosity. The thickest mucosa was registered on the second and the third line behind canines and on 3 lines behind the first premolar, which are recommended as potential donor sites. The thickness increased from the first line behind gingival margin towards the third line. Males had significantly thicker mucosa than females ($p<0,01$), except for the sites behind the first molar ($p>0,05$) where the mucosa was the thinnest in the both gender, which was attributed to the protuberance of the palatal root of the first molar. The same was with the body mass index. There was no significant differences in the thickness of the mucosa between the oval and the square palatal shapes ($p>0,05$). Therefore canine-premolar palatal region is recommended for harvesting free subepitelial tissue for moderate augmentation of alveolar ridges for achieving optimal aesthetics of the pontics.

P 54

Correction of increased vertical dimension

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A major goal of all occlusal treatment is to develop harmony in the masticatory system and to minimize the requirements for adaptation. Increasing the vertical dimension of the dentition is contraindicated because; the direction of the arc of closure will be changed. The aim of this study is to restore the occlusion of the increased vertical dimension.
A 45 years old man's clinical and radiographical examinations revealed fixed partial dentures applied to the right and left side of the mandibula and fixed partial crowns applied to left maxillary central, lateral, first and second premolars. There were no canine contact on both side of the arch due to the increased vertical dimension by the fixed partial dentures. When all of the restorations were removed, the canine contacts were observed. The new fixed partial dentures for both side of mandibula were constructed. Since the metal posts of the maxillary anterior teeth could not be removed, they were covered with opaque resin cement and restored with composite resin. After the left promolars' root canal treatment, zirconium posts were applied to the related teeth and restored with composite resin. The left maxillary anterior central, lateral incisors and the left maxillary premolars were restored with Empress II restorations. The extensively damaged left maxillary molars also were prepared and restored with metal-ceramic restorations. With all those restorations the increased vertical dimension had been reduced finally, so the esthetics and functional needs of the patient was rehabilitated.

P 55

Reestablishing occlusal vertical dimension: A clinical report

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Inaappropriate occlusal vertical dimension causes esthetic, psychological and functional considerations. The objective of thisclinical report was to describe the establishment a new occlusal vertical dimension for obtaining optimal function and esthetics. A 23 year-old female patient with missing teeth applied to Ege University Faculty of Dentistry, Prosthodontics Clinic for rehabilitation. Intraoral and radiographic examinations revealed microdontia and insufficient lower facial height. The patient's demand was a permanent solution that would replace the existing interim denture. The diagnostic casts were mounted on a semi-adjustable articulator and an acrylic splint with the determined new occlusal vertical dimension (OVD) was fabricated. The patient was asked to wear the splint for 2 months followed by weekly recalls for any discomfort. Since she had no complaints and the clinical and radiographic findings of the temporomandibular joints were normal, full mouth fixed partial metal-ceramic restorations were fabricated and inserted. The patient was followed up for 6

months without any complaints. It was concluded that inappropriate OVD experienced by patients is preventable and prevention should be emphasized.

P 56

Application areas of conical crowns

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Conical crowns which are a part of the telescopic systems can be used in the wide range of prosthetic rehabilitations especially on the cases when traditional fixed partial dentures cannot be easily used. The purpose of the study was to present the hybrid prosthesis with conical retainer on three cases where traditional fixed partial prostheses could not be used.
On the presented cases with clinical procedures described; conical crowns were used with the fixed partial dentures; with removable bridge on the abutments having great surrounding bone loss and as retainer with the partial removable dentures. 3 years of clinical follow-up was also submitted.
Clinical experience, carefully selected cases and the precise construction of denture with conical crown resulted superior advantages. The patients had comfort similar to the fixed partial dentures, well balanced occlusal force distribution and the protectin of surrounding tissues.

P 57

Fixed orthodontic appliances and P53 expression in oral mucosa cells

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Introduction: Most orthodontic appliances and archwires are stainless steel or nickel-titanium (NiTi) alloys that can release metal ions, with saliva as the medium Nickel ions has low mutagenic potential in many mutational assays hence it may exert carcinogenic activity by modulation of gene expression. P53 protein is involved in the regulation of cell proliferation and apoptosis. P53 is known to be induced by DNA damage. We hypothesized that the carcinogenic activity of Nickel ions was exerted in part by induction of P53 expression.
Aim of the study: We aimed to elucidate the carcinogenic effects of nickel ions released from orthodontic appliances in oral mucosa cells by detection of P53 expression.
Material and Method: Eighty subjects were included in this study. The first group comprised 50 orthodontic patients with fixed appliances The archwires used in this study were nickel-titanium alloy. The second group comprised 30 subjects who were not undergoing orthodontic treatment and had no dental restorations.Epithelial cells of buccal mucosa from each subject were collected and expression of P53 protein was measured by the Western blotting technique.
Results: Our results demonstrated a statistically significant difference in P53 levels between two groups. In the group of orthodontic patients P53 protein expression was higher than in control group ($p<0.0001$).
Conclusions: This study corroborates the potential carcinogenic effects of nickel ions release from orthodontic appliances.

P 58

Mice and human fibroblasts colonize the surface of titanium samples

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Introduction: Dental implantology is a scientific field that has made a great progress in the recent years. On one hand surgeons want to increase the number of potential indications, on the other hand there is an effort to produce implants of high-quality. Coating of implants is one of the possible way how the implant qualities can be changed. The most common material for coating implants of titanium alloys is hydroxyapatite mostly with thin interlayer of Zirconium. Hydroxyapatite and Zirconium are well-known biocompatible materials. Hydroxyapatite can be classified as a bioactive material and Zirconium as a bioinert material.
Aim of the study: The goal of this study is to find out how the mechanical properties influence the biological qualities – adhesion and proliferation of fibroblasts.

Materials and Method: It was used flat titanium samples covered with profile composition. Hydroxyapatite - Zirconium by laser deposition. The biological qualities of these samples were studied by procedures of in vitro cultivation. The commercially available mice (3T3) and human (HF fibroblastoid cells) lines were employed. It was investigated the evaluation of morphological properties of cell adherent to the surface and proliferation of these cells, especially expression of proliferation marker Ki-67 and ability of cells to produce molecules of extracellular matrix such as fibronectin.
Results: It was assessed that mice and human fibroblasts colonize the surface of the samples and also grow and multiply on it. These fibroblasts produced fibronectin and expressed Ki-67.
Conclusion: The basic research should help to develop a new implant material.

P 59

Titanium samples modified with hydroxyapatite and zirconia are not cytotoxic

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Introduction: The full integration of an implant to a host organism is dependent on external and internal factors. The characters consist of the clinical stage of the bony structure and the immune system. From the point of view of implants there should be considered their surface, shape and the qualities of used materials.
A new bioactive bioceramics surface of the implant is based on Zirconium ceramics, which should enlarge the adhesive surface and improve the biocompatibility of implant without the possibility of a failure of the ceramic coating. One of the possibilities to coat implants is laser deposition of thin hydroxyapatite films.
Aim of the study: Analyses of mechanical and physical properties should answer the question, which parameters with respect to deposition conditions are the most important. The bioceramic film was tested.
Materials and Method: The tested films on titanium (Ti6Al4V) coating samples were evaluated by internationally used methods –adhesion measurement, so called scratch test, analysis of composition and crystallographic structure of film – X-ray diffraction, wavelength dispersive X-ray analysis, profile composition of concentration of elements. Than the test of cytotoxicity was done.
Results: It was found the thickness of hydroxyapatite between 6-12 micrometer and interlayer of Zirconium between 50-70 nanometer. These samples do not behave cytological and the cells do not show any morphological changes in light microscope.
Conclusion: Our study should help to find a new material for coating implants.

P 60

The effects of implant surface topography on osteoblast cell attachment

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Inroduction: There is general agreement that the implant surface topography affects bone-to-implant contact. However, no clinical consensus exists on the choice of proper surface topography.
Purpose: The aim of this study was to evaluate osteoblast cell attachment on implant surfaces with varying surface properties.
Materials and Method: In this study, samples (2.5x2.5x2.5mm) were cut from implants which have six different surface properties (1. Machined, 2. Sand blasted, 3. Sand blasted and acit etched (SLA), 4. Titanium Plasma Spray coated (TPS coated), 5. Hidroxyapatite coated (HA coated), 6. CSTI). Each surface groups were formed with 10 samples.
After that, human osteoblast-like cells were seeded and cultured on the sample surfaces for up to 28 days. The cells behavior was examined using phase contrast microscopy and photographs were taken.
Results: Microscopic evaluations showed osteogenesis and attachment of osteoblasts upon the implant surfaces beginning at 7th day. The extracellular matrix formation were observed on the implant samples. We realized that the attachment increase were more on the TPS coated, HA coated and CSTI surface groups than the other groups.

Conclusion: The results of this work indicated that TPS coated, HA coated and CSTI surfaces offered better cell attachment and proliferation than the other surfaces studied. This study have shown that osteoblasts are sensitive to surface properties.

P 61

The effect of platelet rich plasma on surrounding implant region in animal model

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Introduction: In oral implantology there is a considerable time interval between surgical phase and prosthetic rehabilitation. It would be beneficial for the patient to reduce this time interval by accelerating the process of integration of the dental implants and biomaterials.
Purpose: The aim of this study was to evaluate the healing period of surrounding implant regions with platelet rich plasma (PRP) and biomaterials.
Materials and Method: In this study, 32 New Zealand male rabbits (average 6 months old, 2,5-3kg. each) have been used. Rabbits were divided into 4 groups with 10 specimens in each group based on length of implantation. In this study commercially pure Titanium (cp Ti, 1,5 x 2,5mm.) implant materials and different biomaterials (hydroxylapatite, Tricalcium phospate and demineralized human bone graft), and PRP were placed in to the tibia bones. Four cavities were drilled in each tibia bones. Three semi-circular experimental bone defects were surgically prepared behind the second, third and fourth cavities. These defects were treated with the above mentioned biomaterials with PRP (right tibia) and without (left tibia). Sections are made from tibia bones following 2nd, 4th, 6th and 12th weeks after implantation and histologic examination has been conducted.
Results: Histologic analysis showed that PRP was not efficient in both working and control groups at 2nd week. However, histologic analysis revealed that PRP was efficient in working group at 4th and 6th weeks. Our findings of similar implant and surrounding tissue healing in the working and control groups were paralleled by the results at 12th week.

Conclusion: The study showed that topical PRP enhances bone regeneration around titanium dental implants especially at 4th and 6th weeks. The results also suggest that dental implants with PRP could be early loaded.

P 62

Mandibular overdentures retained by teeth and/or implants

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Mandibular overdentures appear to show more patient satisfaction than complete dentures. The use of two implants in anterior region, following extraction of failed natural abutments, represents a successful prosthetic treatment option. Sometimes the remaining teeth are sound but situated unilaterally, then they may not provide a sufficient retention and support for the overdenture. They may be extracted according to the design of an implant-supported denture but they may also serve as abutments in combination with implant abutments to improve the retention and stability. There should be good periodontal conditions of these roots in comparison with the weakened-ones we use as retainers for a conventional overdenture. Twenty patients were treated with a lower overdenture. In five patients the remaining teeth were endodontically treated, contoured and implants were installed. Overdentures were fabricated after a healing period, retained both by tooth and implant. This group was compared to five patients with one tooth, five patients with two abutment teeth and five patients with two implants in anterior mandible and all were evaluated during 6 months after delivery. The retention, stability and chewing efficiency were improved in comparison with those with unilateral overdenture abutments. This overdenture design is also less costly and less technique sensitive then two-implant-retained denture, even better patrice and especially matrice parallelism can be obtained. Authors discuss indications of such nonconventional connection of tooth and implant into a denture design, advantages, limitations and supposed longevity of the prosthesis or abutments respectively.

P 63

Research into electroformed implant overdentures (electro-conductivity treatment method)

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Introduction: The bar frame is usually fabricated by a casting process it is regarded as being better fabricated from an aesthetic point of view if a ceramic material such as zirconoxid is used. Ideally, when features such as biocompatibility and technique simplification are taken into consideration, it is better to use an electroformed secondary frame to retain the superstructure. The absorption force is determined according to the electroconductivity treatment applied to the bar frame. The authors have developed a new electroconductivity treatment method that is compatible with zirconoxid or ceramics and have completed basic experiments as reported in the following.
Materials and Method: Zirconoxid as used in the Cercon system&Degudent is adopted. For the electroconductivity treatment, a pre-treatment consisting of degreasing, etching, catalytic absorption and finally electroless plating using an electro-conductivity method was applied. Two plating techniques that included both a nickel single-layer treatment and a nickel-silver double-layer treatment were used. The conductivity, uniformity and thickness controllability according to the immersion time of the specimens were obtained under various conditions. A specimen treated by brush painting silver lacquer was used as a comparison target for the measurements.
Results and Conclusion: A new electro-conductivity treatment method of applying electroless plating is capable of achieving a uniform surface treatment the thickness of which is controllable according to the immersion time. It was also confirmed that the conductivity is highest with the treatment method that positions silver as the surface layer. Based on these measurement results, it can be concluded that this innovative electro-conductivity treatment
method based on electroless plating offers an effective process for clinical applications.

P 64

Reconstruction of severely resorbed mandible with modified "Tent Pole" procedure

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Attempts to rehabilitate prosthodontically severely resorbed mandible have historically been associated with lots of problems. These case reports assess the outcome of the simultaneous placement of dental implants and autologous bone in the severely resorbed mandible using the "tent-pole" technique described by Robert Marx (2002). The technique was slightly modified from the previously presented protocol. Two patients were operated with this technique. Both patients had severe mandibular resorption (6mm of vertical bone height in the symphyseal area). Bone graft was harvested from the posterior iliac crest and the mandible was reconstructed with dental implants and simultaneous bone graft using an extraoral incision at submental area. Both patients had four Straumann dental implants (4.1 by 12mm, Esthetic plus) placed between the mental foramina. The graft was covered with Tisseel fibrin glue.Temporaray relining of the lower deture was proceeded after three weeks of the operation. The exposure operation for the dental implants was done after 4.5 months of healing. An implant supported denture was made for both of the patients. Vertical bone height in the midline and mental area were measured intra-operatively, and after the prosthodontic construction was finished. Two case reports with this treatment protocol will be presented in detail.

P 65

Using galvano-formed technique on implant supported prosthesis: A report of two cases

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Present study describes an implant retained galvano-ceramic crown and a bar attachment prosthesis fabricated with galvano-formed technique in two male patients. Applications of electroforming to implant superstructures have been popular because of their excellent adaptability and being more esthetic than porcelain fused to metal in the cases that there is no enough space for metal and porcelain. In first case Frialit implant was inserted on lateral region of the patient. Electroformed framework were fabricated on the replica of the abutment. Subsequently, porcelain was fused on framework. Galvano-ceramic crown was cemented on the implant abutment with glass-ionomer cement. In the second case, after clinical and radiografic examination 4 ITI SLA type implants were inserted to the maxilla of the patient. After 8 weeks of osseointegration period, a titanium bar attachment was fabricated onto 4 ITI SyncOcta abutments,after impression. A gold frame was fabricated using galvano-forming and cemented to the titanium framework. Prosthesis included gold frame and titanium framework was finished with conventional technique. Bar attachment prosthesis

fabricated with galvano-formed technique seems to be an alternative to the conventional implant-supported bar prosthesis due to precise and passive fit of superstructure, and excellent retention capacity. No clinical and radiographic complications were determined after first year on both patients.

P 66

Immediate loading of ITI implants placed in the extraction site after surgery: A case report

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Placement of implants into edentulous areas created by the extraction of teeth due to periodontal disease, truma, etc. is considered to be an ideal treatment. However, in conventional implant therapy, for implants to be placed in these tooth-free areas a period of 3-6 months is essential for the healing process. Moreover, it takes approximately 1 year for the restorative treatment to be completed including the osseointegration process and the prosthetic procedures. By the placement of implants into the extraction sites and immediate loading, this period can be minimized. In our study, a 60 year-old male patient whose maxillary central and lateral incisors were extracted due to periodontal reasons followed by the placement of ITI TE implants in the lateral tooth extraction sites and immediate loading with a fixed restoration after surgery and a 25 year-old male patient whose extraction sites were replaced with ITI Aesthetic Plus implants following the extraction of persisted teeth number 12,13 and 22 are presented. Implants were placed following tooth extractions and by means of Ostell instrument implant stabilization values were measured. As all the measurement values were greater than 65190, the implants were decided to be loaded. After the surgery, impressions were taken with the conventional technique and provisional fixed prostheses were made from acrylic. In the 3rd week of the 8 week-period measurements were made again using Ostell instrument and at the end of the 8 weeks permanent prostheses were fabricated. Immeadiate placement and immediate loading can be alternative to the conventional implant therapy; however, long-term clinical studies are required in order to assess the success ofthis method.

P 67

An alternative technique in transferring prepared cemented ITI solid abutments into models

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One of the most important factors affecting the long-term success of an implant is the correct fit of the abutment and the metal substructure. In ITI implant system, models obtained from non-prepared cemented abutments by conventional methods provide enough accuracy whereas accuracy in models from prepared cemented solid abutments is less. In this study, an alternative technique for the transfer of solid abutments into models by which we believe more precise results can be obtained is presented. In this technique, implant analogue is modified and placed onto the model and the margin on which the metal substructrure will fit is obtained from the analogue instead of the dental stone. In this way, a more accurate fit of the metal substructure on the margins can be obtained. The system presented here can be alternative to the conventional method; however, further studies are essential in order to assess the success of the technique.

P 68

New design of ceramometal crown for implant restorations

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Introduction: The quantity of available bone in an edentulous site has a primary influence on treatment planning, surgical approach, implant placement and prosthetic reconstruction. Osseous and gingival tissue loss following tooth removal and implant surgical treatement may compromise achieving natural esthetic results.
Aim of presentation: The aim of the current study is to present an alternative prosthetic approach where insufficient hard or soft tissue limits the achievement of desirable esthetic outcome. In three different cases, teeth were lost either because of trauma or periodontal disease.
Case description and the treatement carried out: The cases are treated with endosteal implants and after appropriate ossointegration period, ceramometal restorations are fabricated. Cervical portion of the porcelain restorations are designed as ridge-lap pontics in order to capture the cervical gingival emergence of the extracted teeth .

Patient progress: All patients are satisfied with the esthetic outcome and can succesfully maintain the hygiene of the peri-implant tissue. This method, can effectively optimize peri-implant esthetics by replacing the hard and soft tissue architecture of the lost teeth and may be suggested as a viable and predictable superstructure fabrication modality.

P 69

Clinical and radiographic evaluation of single-tooth dental implants in the maxillary anterior region

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Dental implants can be a very satisfying alternative to conventional fixed partial dentures and resin bonded anterior restorations.
The aim of this study was to evaluate the clinical and radiographic outcome of five implants placed in the maxillary anterior region in five patients.
Materials and Method: Five implants were inserted in the anterior maxilla for single tooth replacements. After the osseointegration period full ceramic restorations were constructed and after insertion the patients were recalled 1 week and 1,3,6,12 months later for evaluation. The implants were evaluated by clinical and radiographic parameters. Standardized radiographs were taken using the long-cone technique at each recall evaluation. The restorations were evaluated by two prosthodontists regarding to color match, marginal integrity, anatomical form, and porcelain surface. The patients own appreciation of the implant and the prosthetic therapy were evaluated.
Results: The implants were in function and clinically stable when tested individually; there was no pain from the implants; the peri-implant soft tissues were clinically healthy. Periimplant bone loss was in the clinically acceptable levels. All the patients were satisfied with the esthetic and functional outcome of their prosthetic restorations.
Conclusion: Single tooth dental implants in the maxillary anterior region can be a very good alternative to conventional fixed partial restorations. Case selection, presurgical treatment planning, and the position of the implants play important role on success.

P 70

Sinus floor augmentation and simultaneous implant placement in the atrophic maxilla: A report of 5 cases

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Dental implant placement associated with sinus floor augmentation in a severely atrophic maxilla can be performed in a 1- or 2-stage surgical procedure, depending on the height of the residual alveolar bone. A minimum of 4 to 5 mm is recommended for a 1-stage procedure.
Materials and Method: This clinical study was designed to clinically evaluate the titanium implants placed simultaneously during sinusaugmentation in 5 patients where insufficient bone volume did not allow primary implant stability. A total of 10 dental implants were inserted. The patients were recalled at 6., 12., 18., 24., 30. months.
Results : None of the cases presented any difficulty in achieving initial stabilization and parallelism. No clinical complications of the sinuses were evident. Prior to exposure, radiographic evaluation revealed the implants embedded in a densely homogeneous radiopaque mass. At second-stage surgery, there was no clinical evidence of crestal bone loss around the implants. All implants were clinically osseointegrated. All patients received fixed implant-supported prostheses. Mean follow-up was 18 months (6-30 months).
Conclusion: According to this preliminary study, combination of sinus floor augmentation with simultaneous implant placement in the atrophic maxilla appears to hold great promise.

P 71

Three dimensional finite element analysis of implant prostheses with segmented and nonsegmented abutments

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The aim of this work is to use finite element model to reproduce a standard experimental set-up for the evaluation of segmented and nonsegmented abutment designs. For many different systems, a

variation in the component design is present, the manufacturer's designs for the products is intended to limit stress transfer to the bone surrounding implant body. The nonsegmented abutment system is composed of a fixture, an abutment and an abutment screw, segmented abutment system is composed of a fixture, an abutment, an abutment screw, a gold coping and a gold screw. We analysed the behaviour of the abutment systems considering stress distribution and intensity, in order to establish which one provides the better mechanical behaviour. After the definition of the numerical models, loading conditions were selected in order to reproduce the same stress state found in previous mechanical failure tests. Only slight differences were found between the abutment designs in the amount and distribution of stress. Within the limitations of this simulation study, we found stress distribution and intensity for the 2 implant prostheses was similar for segmented and nonsegmented abutment designs.

P 72

Analysis of fractured screw-type osteoplant implants

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Osseointegrated titanium screw-type implant fracture is one of the most serious failures in the group of late complications. Literature review identified the incidence rate between 0,6 – 3%. Retrospective studies found some factors common to fractured implants: overloads, partially edentulous restorations, bone loss, episodes of retentive screw loosening and standard diameter of the implant body (3,75mm).
The aim: The aim of the study was to determine the cause of fractures and establish rules helpful in prevention of mechanical complications.
Materials and Method: Investigations were performed on implant specimens retrieved from patients who experienced fracture of the fixture component. Scanning electron microscopy revealed striations on the fractured surfaces, suggesting fatigue-associated failure. In some cases plastic deformations were found. Evaluation of polished and etched surfaces of commercially pure titanium Grade IV and Ti6Al4V alloys revealed a typical crystal structure.
Conclusions: 1) Titanium fatigue was a common cause of implant fracture, 2) Improper occlusal surface of fixed dentures resulted in overload and mechanical failure.

P 73

Comperative stress analysis of three different rigid implant designs for distal-extension fixed prostheses

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Introduction: The biomechanics of tooth–supported prostheses are completely different from implant-supported prostheses because the periodontal ligament permits flexion while the implant–osseous interface is stiff. Implants are now used on a large scale for the rehabilitation of partial edentulism. The rigid connection between implants and naturel teeth in free-end cases with rigid connection might result in a potentionalrisk for biomechanical complications.
Aim of the study: This in vitro study determined stresses formed around the implant and naturel tooth abutments under occlusal forces in the fixed partial dentures.
Materials and Method: We investigated the effect of three different implant geometry, in case of free-end partial edentulism, using finite element stress analysis. The stress values of the three mathematical models loaded with vertical forces were analyzed.
Results: The results were evaluated in terms of the maximal equvalent stress in the bone around the abutment tooth and implants. The results indicated that the stress transferring characteristics of Frialit-2 (Frios, 3.80 X 13mm., step screw type) implant were found to be more suitable than Calcitek (MTX, 3.75 X 13mm., screw) and Paragon (SBM, 3.70 X

13mm., screw).

P 74

Accuracy of the mechanical torque-limiting devices for following time in clinical service

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Loosening of screw components for implant restorations has been attributed to insufficient tightening. The degree of tightening may be increased and more closely controlled by use of calibrated mechanical torque wrenches. If the torque is too high, then screw fracture can take place. Thus, accuracy of the torque driver is important. In this study implant torque wrenches were tested for torque delivery accuracy. All of the wrenches had been in clinical service for a minimum of 1 month or a maximum of 3 years and were assumed by the clinicians to be fully effective in delivering the required torque values. Torque delivery accuracy was measured using a technique that simulated the clinical situation. In this laboratory experiment, an implant analog, along with an attached healing abutment was held firmly in Mark-10 torque-meter. 10 sequential torque readings was performed. Torque application errors varied from target value. Significant differences generally existed between individual units and the target torque levels for the Nobel Biocare, Camlog, Paragon, Swissplus implant system's torque devices. The mean torque values of the ITI and Frialit implant system devices were within 5%, Astra Tech and SwissPlus's were within 10%-15% of their respective target torque levels. The the ITI, Frialit, SwissPlus and Astra Tech implant system's devices tested in this study were capable of providing consistent torque at or near their respective targets but torque output of each individual device deviated in varying degrees from target torque values.

P 75

Using the pressure indicating systems to compare bite forces obtained by implant supported complete dentures: Case report

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Introduction: In complete denture wearers, bite force is reduced only 20 to 50% of that dentate subjects. Reasons for limitation in bite force are multifactorial. With implant supported prostheses a significant increase in bite force was observed after treatment. There are several tecniques to evaluate the bite force such as: Strain gauges, T-scan, finite element analysis, pressure indicating films.

Aim: We aim to compare bite force values between implant supported and not supported complete denture using pressure indicating system .

Case description and the treatment carried out: For the prosthodontic treatment of totally edentulous patient, complete maxillary and implant supported mandibular complete denture were planned. Two cylindirical implant (Friadent, Frialit-2) were placed in mandibular both canine regions. Bar and clip design were planned for implant superstructure after the healing and osseointegration periods. Bite force values were recorded on prescale film (Fuji Film, Japan) before attaching the fixtures with bar attachments. Patient applied a maximum bite force in centric occlusion to the prescale film during this phase. Mandibular complete denture stabilized after joining the fixture with bar-clip assembly. And then maximum bite force applied to the film again. It was detected 12 left and 18 right points on the prescale film at first bite force registiration. Mean values on the left side 39.87 MPa, right side 31.04 MPa and average score of two was a 35.45 MPa. It was detected 17 left and 9 right points on the prescale film at second bite force registiration. Mean values left side 39.15 MPa, right side 50.59 and average score of two was a 44.87 MPa. Patient periodically controlled after delivery the prostheses. Retention and stabilization was sufficient and the patient said to increase of the chewing efficency. The prescale tecnique allows invivo testing of bite forces. It is practical, nondestructive. The bite forces precisely measure than other tecniques.

P 76

Prosthetic and endodontic treatment of a patient with sceletal Class III malocclusion: A clinical report

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Introduction: Class III malocclusion has been defined as complete anterior cross-bite and mesial relation between the mandibular and maxillary molars. If such malocclusion is accompanied with pathological symptoms, such as loss of fracture of teeth, periodontal disease, facial asymmetry or temporomandibular joint dysfunction, treatment is required. Aesthetic complaints are another indication for treatment. Severe skeletally based malocclusion requires surgery. In addition to adjunctive orthodontic; occlusal adjustment possibly coupled with complementary restorative treatment. The conservative approach include, three modalities; (1) Occlusal adjustment, (2) Minor adjunctive orthodontics and
(3) Restorations. In adults, either combined orthodontic and surgical methods or a more conservative approach may be used.
Aim of the presentation: Since orthognatic surgery could not planned, because of the patient's age and his systemic condition, in this article we aimed to present the prosthetic and endodontic treatment for a partially edentulous patient diagnosed with class III malocclusion using removable coping-retained overdentures to compensate the skeletal class III malocclusion in the maxillary and the mandibulary arch.
Case Description and the treatment carried out. A 63 years old man, diagnosed with class III malocclusion, complaint of difficulty in chewing, mobile mandibular teeth and dissatisfaction with his aesthetic appearance. His medical record revealed a history of pharmacologically controlled diabetes mellitus tip II. His dental history disclosed that he had not used prosthesis before and he had lost his teeth during childhood. In his dental examination; mandibular left first and second incisors, canine, second premolar and second molar, mandibular right second incisor, canine, second premolar, maxillary left first and second incisors, canine, first premolar and maxillary right second incisor, and canine were present. Also anterior cross-bite, loss of periodontal support in the mandibular incisors area, mobility and gingival recession, accompanied by several missing posterior teeth were exhibited. Milled coping retained overdentures were planned in both mandibular and maxillary arch. Because of the labioversions of the mandibular incisors and to reduce length and thickness of the premolar and molar teeth for overlying denture base material, teeth were endodontically treated. After the teeth were prepared, impressions were taken and the copings were cast with Cr-Ni base metal alloys. After copings were adjusted, the copings were luted. The day after cementation of the copings, impressions for the coping retained overdentures were made with individual trays and medium viscosity additional silicone impression material. A bilateral balanced articulation was developed using 33-degree anatomic acrylic resin teeth. The coping retained overdenture prostheses were processed with heat polymerizing acrylic resin.
Patient progress: The patient was examined 48 hours later for post insertion adjustment and then followed on a monthly basis. At the 1-year follow up, he stated that, he had not any complaint with his overdentures.

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A single stud attachment supported maxillary overdenture: A clinical report

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Introduction: Total edentulism brings many disadvantages for dental practitioners and patients themselves. Preserving of one last tooth may often be of vital importance for the prognosis of prosthetic rehabilitations. Even a single tooth can keep proprioception and neuromuscular feedback mechanisms active, and preserve alveolar bone from atrophy.
Aim of the presentation: The purpose of this treatment was to preserve maxillary alveolar bone from farther resorption, to supply retention and stability for the maxillary denture to be fabricated, and to support proprioceptive mechanisms.
Case description and the treatment carried out: A 42-year-old woman presented with the complaint of ill-fitting partial dentures. Clinical and radiographic examinations revealed extensive ridge resorption and increased mobility of the remaining teeth. Thyroid gland related
systemic disorders took place into the health history of the patient. All but one of the existing teeth was extracted and a single tooth stud attachment supported maxillary overdenture and mandibular complete denture were fabricated for the patient. Patient progress. Expected function and esthetics

were obtained at the end of the treatment. Regarding lip and cheek support the patient had an improved facial appearance and therefore self-esteem.

P 78

Prosthodontic rehabilitation after traumatic tooth and bone loss: A case report

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It is often necessary for many dental diciplines, including prosthodontics, oral and maxillofacial surgery, endodontics and orthodontics, to interact in the planning and treatment of patients who have severe maxillofacial trauma. The loss of natural dentition through accident or deliberate action has been part and parcel of our competitive nature. The patient with maxillofacial defects resulting from motor vehicle accident will have numerous soft tissue and hard tissue injuries ranging from neurologic involvement to fractures and/or avulsions of the temporomandibular joint, maxilla, mandible, teeth and supporting structures. Face, lip, gingiva and tongue lacerations frequently cover deep-seated fractures of teeth and alveolar bone. The severe loss of prosthodontic support may result in the tendency to use a removable prosthesis supported both by teeth and soft tissues. The introduction of osseointegrated implants offers an opportunity to enhance the prosthodontic support with different treatment designs. Removable implant-supported prostheses have numerous advantages, including increased retention, stability, patient satisfaction and the preservation and maintenance of existing hard and soft tissues. This clinical report describes the treatment of a partially edentulous patient as a result of a traumatic injury in a car accident. The prosthetic rehabilitation was completed by constructing a maxillary implant-retained removable prosthesis and a mandibular prosthesis with precision attachments. The objective of the treatment was to achieve a permanent restoration for the patient with suitable esthetics, form and function together with long-term easy maintenance and correct phonetics. The greatest benefit of this procedure probably lies in the psychological benefit of minimizing the perceptible and visible residuel defect to the patient. This ability to improve the psychological quality of life is an important aspect of treating these patients.

P 79

Root retained ovendentures

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Introduction: Treatment with overdentures is an alternative to conventional complete and removable partial prosthesis. In recent years implant retained overdentures have been widely used however mostly because of their costs and fear and health reasons, they are not a treatment alternative for many patients. On the other hand, retention of remaining teeth for use as overdenture abutments provide several different advantages such as, a reduction in bone loss, maintenance of a proprioceptive sensation which has psychological advantages for the patients, good retention and stability for the prothesis and cost efficiency. A great variety of retention systems are available in market for use with overdentures. Stud attachments are most popular systems used for overdentures fixation. They can be used singly or in multiply bilaterally, usually on canine or premolar roots. The stud type attachment can provide flexibility when the vertical interarch space is limited. Many types of prefabricated stud attachments suitable for use in overdenture construction are available.
Case description: In this presentation three cases which treated with Dolbo-Rotex attachments has been shown. Two of them were complete overdentures and one was partial overdenture.
Patient progress: This relatively cheap, easy and time saving treatment modality provides good aesthetic, good retention and stability and patient satisfaction.

P 80

Conversion of a failed partial denture to a partial overdenture

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Removable partial overdentures are prostheses that use both intact natural teeth and tooth roots for support and retention. In this poster conversion of a failed maxillary precision attachment retained removable partial denture to a removable partial overdenture is described.

A 60 years old woman having a maxillary distal extension removable partial denture retained by extracoronal attachment was referred to the prosthodontics clinic. Three unit fixed partial denture retaining the removable partial denture was broken into two pieces and the cast post-core on the maxillary left lateral incisor was decemented. In the initial clinical examination the removable partial denture was determined to have an acceptable occlusion. After radiographic examination, the removable partial denture was decided to be converted to a removable partial overdenture and the clinical steps are described below: A pick-up impression of the removable partial denture and also an impression of the opposing arch were taken using irreversible hydrocolloid impression material. The working casts were transferred to an articulator after occlusal registration was taken. An artificial maxillary lateral incisor with appropriate shade and mold was added to the removable partial denture. The post-core on the maxillary left lateral incisor was removed and a new post-core carrying a stud attachment was cast in one piece using a Co-Cr alloy. The post-core carrying the white retentive cap was cemented in place using a dual cure adhesiveluting cement. A relief area was prepared in removable partial denture at maxillary left lateral incisor region for placement of the retentive cap. The retentive cap was attached to the removable partial denture by the use of autopolymerizing acrylic resin.

P 81
The removable partial overdenture: Clinical reports
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An overdenture is a removable prosthesis, the denture base of which covers one or more natural teeth, or implants. Removable partial overdentures are prostheses that use both intact natural teeth and tooth roots for support and retention. They are generally similar to removable partial dentures in all ways except that denture base areas overlie one or more natural tooth roots and use these tooth roots for support and/or retention. Many patients may have some serviceable teeth but too few abutments to provide stable support for prosthesis constructed in a conventional manner. Remaining abutments are rarely in an ideal location to provide proper retention or support. In these cases, strategically placed osseointegrated oral implants can be used in conjunction with natural root structures. With the use of intraoral implants more convenient prosthesis can be created. Properly made removable partial overdentures can provide superior function, aesthetics, and preservation of alveolar bone to conventional dentures. However overdenture abutments alone do not provide the positive retention. To overcome this problem removable partial overdenture can be used in combination with precision attachments like bars and/or stud attachments. Some advantages of removable partial overdentures are maintenance of alveolar bone and proprioception, increased masticatory ability and patient acceptance, additional support and stability provided for the dentures and psychological advantages. Because of these advantages removable partial overdentures offer inexpensive, expedient, and conservative solutions to many problems of poor-prognosis dentitions. The aim of this presentation is to present the oral rehabilitation of three patients treated with removable partial overdentures of different design.

P 82
Prevalence of denture repairs in different regions of Croatia
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Objectives of this study were to analyse denture repairs in relation to new denture deliveries (registered through Public Health Service - covered by insurance) in different regions of Croatia through the period of 2002 year and to analyse the percentage of different repairs (relinings, simple repairs - up to 2 elements and complicated repairs-more than 2 elements). Number of delivered dentures, as well as number and type of repairs was obtained from Croatian Institute for Health Insurance for the region of Zagreb, Rijeka, Split and Karlovac. Information of the number of prosthodontic teams in the same regions was also obtained. The highest percentage of repairs: 21,42% was registered in Karlovac (less than 100 000 inhabitants), then in Rijeka 14,47% (more than 250 000 inhabitants), Zagreb 7,47% (more than 1 000 000 inhabitants) and the smallest percantage was registered in Split: 4,97% (more than 350 000 inhabitants). The smallest percentage of denture

relining was registered in Split and the highest in Rijeka. The smallest percentage of simple repairs was registered in Rijeka and the highest in Split. The smallest percentage of complicated repairs was registered in Split and the highest in Karlovac. Percantage of repairs, as well as type of repairs are correlated with the number of prosthodontic teams in the region. Karlovac had the smallest percentage of specialistic prosthodontic teams.

P 83

Head position and freeway space in different vertical dimension measurements

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There is no universally accepted or completely accurate method of determining the vertical dimension of occlusion in edentulous patients. The aim of this study was to compare three methods for determination of vertical dimension, which are often used in clinical practice and to study influence of changing head position to interocclusal space. One hundred of healthy fully dentate subjects (18-33 years) with Angle Class I were instructed to say «s», and «mi», and to maintain postural rest position until the freeway space was measured. This was done in different head positions: straight, head leaned back and head leaned forward. Measurements were performed between upper and lower central incisors, between upper and lower canines and between upper and lower first molars. There was no significant differences between gender ($p>0.05$). Interocclusal space decreased from incisors towards molars. Head position had a significant impact on the size of freeway space in postural rest position ($p<0,01$); (head leaned forward, interocclusal space increased, head leaned backward, interocclusal space decreased). During speech of «s» and «mi» the size of freeway space remained constant. These findings confirm that clinical determination of vertical dimension should include speech methods rather than relaxation. Results also revealed significant positive correlation between vertical overlap and interocclusal space during speech of «s» ($r=0,7$), and «mi» ($r=0,5$) and weak correlation during the postural position ($r=0,35$). Horizontal overlap was significantly, but weakly associated with «s» pronunciation ($r=0,2$), while for «mi» and rest position of the mandible, there was no significant correlation.

P 84

Correlation between dimensions of the face and frontal maxillary teeth

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Dimensions of frontal upper teeth are very important in prosthetic dentistry. The purpose of this study was to show association between parameters of face and width and length of canine and incisor maxillary teeth and to compare width/length ratios of all measured parameters depending on gender and body mass index. Study was conducted on 104 subjects (38 male and 66 female) between 19 and 30 years of age. The length of three thirds of the face, width of radix nasi and width of alae nasi, length of upper lip, nose length, width and length of upper central and lateral incisors and canines, visibility of upper central incisors in rest position, visibility of upper central incisors during smile, as well as width of lips during smiling. The analysis of results showed that average height of upper central incisors in male population was 10.7mm, upper lateral incisors 9.29mm, and upper canines 10.8mm. Female subjects had average height of upper central incisors 10.3mm, upper lateral incisors 8.6mm, and upper canines 9.6mm ($p<0.05$). Width/length ratio of maxillary central incisors was 0,83 of maxillary lateral incisors 0,77 and width/length ratio of canines was 0,81 ($p<0.05$). Statistically significant correlation was registered between the length of the lower third of the face and of upper lip, between width of all maxillary incisors and width of alae nasi, between width of incisors and canines and alae nasi, between width of incisors and canines and width of lips during smile ($p<0.05$). Measured parameters may be helpful in selection of size and shape of artificial teeth.

P 85

The relationship between hamular notches and maxillary anterior teeth

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One of the difficult aspects of complete denture prosthodontics is the selection of maxillary anterior teeth. Several anatomical landmarks are used currently, when selecting an artificial teeth for edentulous patients. The aim of this study was to investigate whether there is a relationship between the distance between two hamular notches and the total mesiodistal width of six maxillary anterior teeth. 110 impressions were taken from the subjects by using stock trays and irreversible hydrocolloid impression material and study casts were prepared with dental stone. The individuals whom impressions were taken were the age between
19-22. The subjects were standardized in terms of dental status e.g. there was no tooth loss and no anterior restorations on the upper jaws. The total mesiodistal width of six upper anterior teeth and then the distances between two hamular notches were measured by Boley caliper. The results were analysed by using correlation and regression tests. According to the results there is a correlation and direct proportion between mesiodistal width of six maxillary anterior teeth and the distance between two hamular notches statistically. However, the distance between hamular notches should't be taken reference point alone to select the maxillary anterior teeth.

P 86
Prosthodontic rehabilitation of extremely worn teeth: Case report
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Occlusal surface wear causing decrease in the vertical dimension can lead to various problems in the stomatognathic system. While tooth wear within the physiologic limits is considered normal, if these wear is excessive, pathologies in the temporomandibular joint (TMJ) and masticatory muscles may occur. As patients usually adapt to their existing vertical dimension, prosthetic rehabilitation may not be need unless esthetic or functional requirements are present. If the decrease of vertical dimension is significant, transitional restorations should be used before the final prosthesis to allow TMJ and muscles to adapt to their new position. In clinical examination of an 87-year-old man complained of maxillary partial edentulous and teeth wear causing hypersensitivity, it was observed that all natural and artificial teeth have been worn, vertical dimension is decreased and bilateral maxillary posterior edentulous areas were present. It was also detected that all mandibular teeth were remaining or had been restored with fixed partial dentures. Before the final restoration a transitional prosthesis was used in order to increase the existing vertical dimension and to regainfunction. So removable partial dentures (RPD) of th e patient were used and the amount which was planned to be increased was provided by adding acrylic resin on the occlusal surfaces of RPD. Following an adaptation period of 2 months, maxillary anterior teeth were
rehabilitated by means of a fixed prosthesis, whereas maxillary posterior areas were treated with RPD. Although there was a difference of 6mm between the pre- and post-prosthetic vertical dimensions no problem in adaptation of TMJ and masticatory muscles was observed. The most important points to be considered in such treatments are to find the most appropriate position in which TMJ and masticatory muscles can be adapted asymptomatically, the lost esthetic and function is restored and comfortable daily life is enabled for the patients.

P 87
Rehabilitation of decreased vertical dimension of occlusion: Case report
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Maxillo-mandibular relations might be defected, after tooth loss. To leave the patient without any treatment or predetermined inadequate vertical dimension of occlusion may cause several problems. The occlusal vertical dimension should be reestablished close to the as the preexisting one. However even this may not lead to successful results due to the resorption related functional and anatomical changes. The correct determination of the maxillo-mandibular relation which meets functional, esthetic and phonetic needs of the patient is essential for a successful treatment. A fifty year-old female patient with esthetic problems, functional deficiency and tem poromandibular joint (TMJ) complaints reffered to our clinic. The clinical and radiological examinations revealed partially edentulous mandible and edentulous maxilla with a torus palatinum. Mobile and undercut areas were observed in premaxilla. It was clear that maxillo-mandibular relation was incorrect, the mandibula was in protruded position, the profile of the patient was distorted and a decrease in lower facial height and severely worn dentures was observed. The patient stated that, she had been wearing her denture for 20 years. As a result of clinical assessment, maxillary transitional complete denture was prepared in order to increase the vertical dimension of occlusion to restore the functions. The patient was told the

denture for three months in order to adapt of the new interocclusal dimention. During this period, TMJ pain was relieved and esthetic, functional problems were eliminated. After providing appropriate lower facial height and maxillo-mandibular relation, clinical and radiological controls were performed. The treatment was completed with a maxillary complete denture and a mandibular removable partial denture. After the rehabilitation the patient was satisfied with the profile and esthetic appearance with adequate function.

P 88

Immediate removable partial dentures

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One of the problems of a prosthodontic practice is the treatment of patients who must have some of their remaining teeth extracted. The usual method is to remove the hopeless teeth, allow the extractions sites to heal and construct a prosthesis after healing is completed. Although this solution is easy for the dentist, only a few patients prefer it because of the distortion of their facial appearance and the loss of their masticatory function. The immediate replacement of the teeth is considered to be an alternative solution. In this case a difficulty to be faced is the type of the prosthesis that has to be used. There are two main types of such dentures; the one is totally fabricated by acrylic resin while the other by acrylic resin with a metal framework. Partial dentures with a metal framework are a very good solution and provide many advantages for both patient and dentist. The extraction sites and residual ridges heal rapidly with a minimum of postoperative problems while the patients mental outlook is excellent because both function and esthetics are maintained. As for the dentist, he is not obliged to make interim restorations, thus can save time. Moreover he has more data for the choice and the arrangement of the artificial teeth. On the other hand there are certain drawbacks, too. First of all, the extraction of several teeth is undesirable if the patient has a medical problem. Then, more cooperation is needed from the part of the patient. Lastly, the clinician and laboratories procedures are more complicated. In this poster we will deal with the above procedures giving emphasis to the stages of the final impression and the try in of the
metal framework, which is not always possible and which depends on the several construction techniques.

P 89

Removable dentures satisfaction in regards of aesthetic, function and phonation

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Introduction: Oral health and denture satisfaction play an important role in the quality of life and general well-being of the eldery.
Aim of the study: To determine the present situation of the prosthodontic treatment under the patients' point of view via questionnaires.
Materials and Method: A total number of 1.350 questionnaires were sent to old people's homes (age group over 55 years) and an analysis of descriptive statistics and odds ratios were carried out on 574. The questions asked related to the type of treatment and the general anamnesis as well as aesthetics, function, phonation and denture satisfaction.
Results: Aesthetics: 58,2% of the seniors reported an improved appearance with their dentures.Function: 81,2% of them reported that they could chew very well. 26,9% stated to have unstable dentures. 21,2% suffered from prosthetic pressure point. 27,2% used adhesives. 77,6% were very satisfied with the function of their dentures whereas 19,9% were dissatisfied. Phonation: 25,5% of the seniors suffered from worsening of pronunciation. 14,9% had even been addressed about a change/worsening of their speech. Satisfaction: 17,5% regarded their dentures as "foreign bodies". 76,6% were very satisfied.Dissatisfaction with removable dentures is 8,5 times higher in the patients suffering from speech problems than those with an unchanged phonation. The odds ratio of the influence of aesthetics on the total satisfaction is 13,2% whereas only 11% reported dissatisfaction with aesthetics.
Conclusion: In this study, through the calculation of the odds ratios for the single questions in correlation with the totalsatisfaction, important insights into function, aesthetics and phonetics have been gained. From a professional point of view the treatment needed is more intensive than that amount necessary for the patients´ subjective treatment needs. For the elderly a well functioning denture and an unchanged phonation is more important than aspects of dental aesthetics.

P 90

Designing removable partial dentures: Aesthetic and hygienic considerations

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There has always been a concern regarding the biomechanical aspects of RPDs' design such as stability, retention, loading of supporting tissues and mechanical durability. Successful treatment necessitates thorough knowledge of the RPDs' interactions with the oral tissues and it is of fundamental importance to design it so as to interfere as little as possible. The "open" or "hygienic" design that has been documented, emphasizes the simplicity and the patient's satisfaction and recommends to avoid gingival coverage and close relationship between parts of the RPD and the gingival tissues. According to these hygienic principles the following guidelines for denture design are suggested:

• Appropriate retention should be achieved with no more than two retentive elements for the RPD framework, regardless of its support (mucosa/dental).
• In Kennedy Class I and II retentive clasps opposite the fulcrum line, should also be avoided.
• The replacement teeth near the natural dentition in free end saddles RPDs and the replacement teeth in pure dental support RPDs can be abutted directly to the residual ridge as a "pontic", without acrylate base offering better esthetics and avoiding contact with the gingival margin.
• The direct retainers should preferably approach the abutment tooth horizontally and proximally directly from the denture base or pontic across the embrasure and well relieved from the gingival tissue.
• The minor connector should avoid contact with the free gingival and should be extended directly from the base on to the proximal aspect of the abutment tooth.

Complicated designs that strictly follow mechanical rules could have a negative effect on oral hygiene and might deteriorate rather than improve the prognosis. The concept in RPD design should rely on simplicity, secure esthetics, comfort and occlusal stability and should consider oral hygiene and patient satisfaction. Applications of these principles in clinical cases will be presented.

P 91

Patients' satisfaction after complete denture treatment

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Purpose: With the increase of the average life span and the quality of life, th e expectations of the individuals for long term use of dentures have been increased. The aim of this study was to compare the patient complaints and the clinical findings among the retired Turkish population who are using complete dentures.

Materials and Method: 42 patients, whose ages were varying between 55 to 77, that applied to Gülhane Military Medical Academy with the desire of new dentures, were included into this study. Intraoral clinical examinations were done and the patient records were filled in into special forms. The evaluation forms included patients' dental history, the reason they want to change their prosthesis and the results of the clinical examination findings.

Results: The data was evaluated with t-test, Yates corrected square, Fischer tests and the logistic regression analyses method within the independent groups. The time period that patients used their existing dentures were altering between 1-25 years. 35.7% of patients claimed that throughout the use of their dentures they had to see their dentist at least once for relining or repair purposes. 56 of the patients (66.7%) had the expectations of both acceptable esthetics and the adequate function collectively.

Conclusion: In this study, the correlation between the patient complaints and the clinical findings were evaluated. It was concluded that the relationship between the variations, like personality, expectations, the time period that the dentures have been used and the number of the new dentures fabricated, showed variations.

P 92

Evaluation of sex and education on the satisfaction of the complete denture wearers

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Aim: The patient's attitude toward dentures is often mentioned as an important factor for the acceptance of complete denture. The aim of this study is to assess the effect of sex and education on the satisfaction of the complete denture wearers.
Materials and Method: Students at the Dental Faculty of Marmara University, Turkey made new dentures for 33 patients who were asked to participate in the investigation. The 16 men and 17 women were 45 to 81 years of age with a mean age of 63.9 years. The attitude toward dentures in general was measured by means of 11 items in a questionnaire. The 10 questions of the questionnaire were answered on a five point scale and the 11th one is answered by the numbers from 1 to 9. One year after placement of the new dentures, patients' opinion were evaluated. The education factors were divided into two subgroups as low-education and high-education. The Chi-square statistical test was used to evaluate the questionnaire.
Results: The ratio of satisfaction while eating was 88.24% for women and 68.7% for men. Only 37.5% of men and 23.53% of women were declared that their denture did not move while eating. The ratio of men and women who declared lack of need for food selection was 56.25% and 76.47% respectively. The ratio of highly satisfied women and men was 70.59% and 50% respectively. The ratio of never satisfied women and men was 17.65% and 31.25% respectively. No significant differences were examined in the ratios of low and high educated groups.
Conclusion: No statistically significant differences of satisfaction were examined between the groups of patients wearing complete denture that are organized due to sex and education. The opinion of men and women about their denture are nearly equal.

P 93
Effect of disinfection on the dimensional stability of different polyether impression materials
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Purpose: Difficulties in sterilizing impressions by traditional methods have led to chemical disinfections as an alternative and polyether impression materials are more hydrophilic in nature. This study investigated the effect of three different disinfecting methods on the dimensional stability of three different polyether impression materials.
Material and Methods: Three different polyether impression materials were submitted to the following treatments. Spray disinfectant appliance, immersion in 2 % gluteraldehyde solution, immersion in 0.525 % sodium hypochlorite solution for 10 minutes and a control group (not disinfected). After treatments, dimensional change was evaluated by use of a stainless steel die (ISO 4823). The data were analyzed with two-way analysis of variance at "alpha"=0.05.
Results: The interaction between impression materials and disinfectant treatment was not significant and the disinfecting treatments did not differ from the control.
Conclusion: From the standpoint of dimensional change the disinfectants tested for 10 minutes caused no significant linear dimensional change in the polyether impression materials, compared with the control group.

P 94
Shearing forces of foods with two artificial teeth materials
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Introduction: There are many artificial teeth materials available with dispersed materials properties, which must affect the breakage of foods during mastication. However, it has not been disclosed whether the material difference would affect the shearing force of foods.
Aim of the study: The aim of this study was to determine whether there are differences in shearing forces when two artificial teeth materials, acrylic and ceramic, shear five test foods with various textural properties.
Materials and methods: Specimens of artificial teeth materials were formed in 1cm cube shape. One specimen was attached up on the load cell and the other two were fixed down on the sample stage on the universal testing machine (INSTRON 5544, INSTRON Co., MA). The specimens were positioned as the upper specimen could descend in between the lower two specimens, where the gap between the upper and lower specimens was set at 0.3, 0.8, and 1.3mm. Pickled radish, cheese, sausage, boiled fish paste,and raw eggplants were used for test foods. Three samples prepared in a rectangular shape (50x5x3 mm) were assigned for each testing condition. A food sample was placed

across the lower specimens and shorn by the descending specimen at 10 mm/min. The maximum value measured under the shearing was used for the analysis. Data were analyzed using ANOVA and then were subjected to post hoc analysis.
Results: Shearing force was influenced by all the factors, artificial teeth material, food and gap ($p<0.05$). The ceramic demonstrated lower shearing force than the acrylic ($p<0.05$). The significant interaction was found between artificial teeth material and test food ($p<0.05$). The largest difference between the ceramic and the acrylic was found for pickled radish among the five test foods.
Conclusion: It was suggested that the artificial teeth materials showed a significant influence in shearing forces of foods.

P 95
Control of retention with newly designed wrought wire clasp
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The clasp design was newly developed in order to make the best use of the advantages in wrought steel wire. The retention could be strong by the adjustment of the arm length in this wire clasp. The aim of this study was to investigate the relation between the arm length and the retention. Upper second premolar was selected as a direct abutment tooth on the assumption that upper first and second molar were lost. The medial rest and distal guide plane was prepared in the abutment teeth. The length of the clasp arm which was made by Co-Cr and running along the border of denture base was adjusted using self cured acrylic resin. The size of tested wrought wire was 0.7, 0.8, 0.9 and
1.0mm and the length of clasp arm was 15, 10 and 5mm for tension test. The results indicated that there was not clear relation between the size of wire and the retention but the retention was in the inverse proportion to the arm length in the same undercut.
The retention could be well controlled by the adjustment of arm length in the newly designed wire clasp and these advantages of the wire clasp were also useful for the increase in retention at the case of denture repairing.

P 96
The silicone elastomer bonded to alloy in complete upper dentures
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Introduction: The use of elastic materials may eliminate one of the etiologic factors of palate inflammatory papillary hyperplasia (PIPH). This condition found on the hard palate in the place was a relive chamber has been provided in the denture. The author was unable to find any solution to this problem in the available literature.
Aim of the study: The aim of this study was to investigate the values of Molloplast-B in compensation for the varying degrees of resilient found in the hard palate and to determine the strength at the bond between the dental alloy and elastic material. A further aim was to evaluate the fracture patterns-failure mode at the junctions obtained using the bonding system to determine which failure occurred during the tensile and strength test.
Materials and Method: Rocatec bonding system were used to bond silicone elastomer to a metal denture base material, which were cast from chrome-cobalt alloy Remanium GM 380 and titanium alloy Reamatitan. The mechanical strength of the bonds was examined using tensile and shear testes. Both the tests were assessed statistically using ANOVA method.
Results: The Rocatec system provided reproducible results and slightly higher mean results values of the tensile stress (2.26±0.15MPa for the chrome-cobalt alloy and 1.88±0.27MPa for the titanium alloy) and then mean values of the strength stress which were slightly lower (1.41±0.21MPa and 1.23±0.19MPa). Fracture planes of bond, produced by the tribochemical Rocatec system, occurred in the cohesive, i.e. within the silicone elastomer and provided satisfactory bond strength. Based on the results of these laboratory tests, authors constructed complete upper dentures with metal bases in order to determine whether the findings were of significance relined with silicone elastomer.

P 97

Prosthetic treatment after hemimandibulectomy: A case report

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The status after resection of a lower jaw segment (i.e. hemimandibulectomy) always represents a large defect due to a surgical treatment either of tumors or injuries. Handicaps of these patients depend on its extension. The lower jaw laterognathism and parafunction, worse pronunciation, aesthetic and mastication limit patient's social integration. Loss of the temporomandibular joint, lack of the soft and hard lower jaw tissues inferiority can cause difficult or inadequate prosthodontic therapy. The covering of defect by overdenture may help
in patient´s rehabilitation. The quality of reconstruction is given by overdenture preparation and also by retentive attachment elements. Prosthetic treatment of those defects needs an individual approach to achieve a good result of the reconstruction. The methods of prosthetic therapy are unusual and one of them is demonstrated in the presented clinical case.
Case report: 61-year woman
Diagnosis: Right hemimandibulectomy and actinotherapy after oropharyngeal carcinoma; non-occlusion, microstoma.
Therapy: Ball attachments on abutments 33, 43, 44 make retention of removable denture. The methylmetacrylate overdenture is supported by three spherical anchors that provide a strong retention of removable denture. Optimal function setup stabilizes the occlusion plane. The esthetic appearance is acceptable; lip and bucca support is done by base of denture.

P 98

Cast metal guidance flange prostheses for a patient with segmental mandibulectomy

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Loss of continuity of the mandible leads altered mandibular movements and deviation of residuel fragment towards the surgical side. This results decreased mandibular function. The purpose of this study is to describe the fabrication of cast metal guidance and support flange for a patient with segmental mandibulectomy.
A 30-year-old man with chief complaint of pain on his right body of mandible was examined and diagnosed as osteogenic sarcoma. Right segmental mandibulectomy was performed at the Department of Otorhinolaryngology. After healing period, the patient was referred to the Department of Prosthodontics. White roughened hypertrophied mucosa was observed on inner side of right cheek and tongue. A cast metal guidance prostheses with supporting flanges were suggested for reducing mandibular deviation, and keeping the cheek and the tongue out of the path of closure. A guidance flange was designed to extend from a continuous clasp along the buccal surfaces of the premolar and molars for the mandibular framework on non-defected side. This design was incorporated with the maxillary partial denture framework. A retentive mesh along the buccal surfaces of right premolars and molars at defected side extended inferiorly for the maxillary framework and also retentive mesh along the lingual surfaces of the premolars and molar re-extended superiorly for the mandibular framework for the defected side were designed to prevent incoordinated masticatory movements. The frameworks finished. An acrylic resin was added to the meshes on the defected side for both frameworks. The frameworks were inserted and some exercises were suggested. The patient was able to achieve the functional intercuspal position after insertion of prostheses. This kind of treatment procedure may be suggested with incorporating with other solutions.

P 99

Neutral zone technique application for a patient with marginal mandibulectomy

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Anterior defected areas usually display unusual soft tissue configurations and compromised bony support by patients with marjinal mandibulectomy. Removable partial denture (RPD) may be a preference to the other treatment choices. RPD framework should be designed for compensating support, stability, retention, reciprocation. Maximum stability of the partial denture base may be accomplished by a double impression procedure or by the application of the neural zone concept. The aim of this clinical report is to describe a RPD for a patient with marginal mandibulectomy using neutral zone technique. A 41-year-old man with chief complaint of enlargement of right mandible was examined. The mass expanded to the buccal and lingual bone plates intraorally in this region.

Expansion of cortical plates of bone and erosion of root interfaces of teeth were determined radiographically. The lesion was multiloculer cystic ameloblastoma according to pathologic report. The lesion was excised with mobile teeth at this region. He was referred to the Department of Prosthodontics for prosthetic treatment. Master casts were made and surveyed. A metal framework for the mandible was
made in cast and tried intraorally. The red modeling plastic impression compound was softened and combined with the cast framework for functional impression that would determine the neutral zone region. The green modeling plastic impression compound was loaded on the red one. Functional movements were made by the patient. A final functional impression was corrected using zinc oxide impression material. The matrices were made of silicone. The artificial teeth were arranged for the edentulous region with guidance of silicone matrices.
The trial denture checked intraorally. Improvements made during functional movements of the patient. The definitive denture delivered to the patient. We concluded that mastication, speech, esthetic and control of the saliva were improved for the patient with the use of neutral zone technique.

P 100

Prosthetic rehabilitation of a partial glossectomy patient: A case report

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Introduction: Tumors of the tongue are the second most seen carcinomas of the oral cavity and they are frequently originated at the posterio-lateral region. Surgical procedures of the tongue tissues are named as “Glossectomy”. Glossectomy operations could be applied as partial or total. Partial or total glossectomy is usually combined with other ablative procedures such as partial mandibulectomy, radical neck dissection, surgical reconstruction and radiation therapy.
Aim of the Presentation: This clinical study describes the use of the tongue as a lower denture retainer in an edentulous patient with partial glossectomy.
Case description and the treatment carried out: A 80 years-old woman was referred to our clinics following her partial glossektomy for evaluation. She had a history of swelling for two months because of a carcinoma at the posterio-lateral region of her tongue and she had undergo a partial resection. The patient was partial edentulous at the upper jaw and totally edentulous at the lower jaw. Her tongue became inactive and insensitive after the surgical operations, and deviated to the right side. Oral examinations indicated a removable partial denture for the maxilla and a total denture for the mandibula. Artificial acrylic teeth did not arranged at the right side of the lower denture beginning from the canine. This part of the denture is placed under the inactive tongue and hence the retantion and the stability of the mandibular denture is provided.

P 101

3-year follow-up of a swing-lock prosthesis for a maxillofacial patient

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Introduction: The Swing-Lock Removable Partial Denture (SL-RPD) concept is recommended for maximizing stability and retention by gainig access to many more tooth surfaces with unique clasping mechanism affered by incorporation of the lock, hinge and gate assembly, allowing all remainig teeth to become primary adutments.
Aim of the Study: This study evaluated the clinical performance of a SL-RPD for a maxillofacial patient after 3 years in service.
Case Description and the Treatment Carried Out: A 21 year old woman who had a history of a truck accident in a farm 10 years ago was refered to University of Hacettepe in 2001. An intaoral examination revealed that right premolar and molar teeth were absent. Additionaly, right molar area of the maxilla was surgecaly resected. Since the lack of a residual alveoler ridge and soft palate in this partial maxillectomy patient complicated the design of a conventional RPD and made the implant therapy imposible, a SL-RPD was suggested for the clasp retantion of the maxillofacial prosthesis. On the master cast, the SL-RPD was designed including multiple retantive bar clasps engaged in the apropriate undercuts, utilizing as many teeth as possible and a swing lock retainer at the right premolar region. After completing the
laboratory procedures, the polished SL-RPD was checked the fit and occlusion of the prosthesis. Thirty-six months later, the prosthesis was entirely satisfactory to the patient and the remaining teeth

in sound condition.
Conclusion: For the maxillofacial patient in this study, a SL-RPD performed satisfactionaly function and esthetics within 3 years. It is suggested that
SL-RPDs be considered an option for the prosthodontic rehabilitation of patients with partial maxillectomy.

P 102
The hollow denture: An alternative treatment for atrophic maxillae
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A major problem in dentistry is the prosthetic rehabilitation of deficient edentulous ridges. Altough the resorption process is generally a more serious clinical problem in the mandibular arch, significant loss of alveolar bone in the maxillae can prove equally problematic. Severe atrophy in one or both of the alveolar residual ridges of the complete denture patient presents difficult restorative problems. Some patients have an atrophic maxillary denture that may consistently lose its peripheral seal. In order to construct a hollow-bulb denture, the customary clinical and laboratory procedures are accomplished by investing the denture in a flask. The double-flask technique described by Chalian and Barnett is well-known for the fabrication of the hollow bulb portion of an obturator prosthesis. This study shows a technique for the fabrication of a lightweight hollow denture that can be used for selected a patient with advanced atrophy of the maxillae where more conventional denture is either not possible or contraindicated.

P 103
Prosthetic rehabilitation of a cleft palate patient: A case report
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Introduction: Cleft palate is one of the most common congenital anomalies. When indicated, prosthodontic/reconstructive treatment as a rule the final link in the cleft lip and palate treatment chain.
Aim of presentation: This clinical report describes the prosthetic treatment of a cleft palate patient with the aim of providing satisfactory function, esthetics and alleviation of deformities.
Case description and the treatment carried out: A 23 year-old white man, who had bilateral congenital cleft palate, was referred to the Department of Prosthodontics, functional and esthetic problems. A detailed medical, dental and social history was obtained. The patient had received surgical and orthodontic treatment. Dental radiographs and diagnostic casts were made. Chewing ability and esthetics were poor because of missing teeth and maxillary insufficiency. He lost his right maxillar lateral and left maxillar incisor teeth. A treatment plan was developed with the following aims: to improve esthetic, to stabilize maxillary segments and premaxilla, to restore masticatory function and to close palatal defect. Left incisor teeth and bilateral premolar, canine teeth were prepared for the construction of metal-fused ceramic fixed prosthesis. The crowns splinted with dolder bar. After extensive fixed prosthesis completed, impressions were made for the construction of removable partial dentures. In maxilla precision attachments were used on dolder bars. After trying in, removable prosthesis were removed from mouth, finished, polished. Patient was controlled.
Patient Progress: The treatment goal in the habilitation of persons with congenital cleft lip and palate is to enable the individual to function in society on terms as equal as possible to subjects without clefts. In this case our patient has progress in controlling the leakage of oral fluids, compromised chewing ability, and esthetic.

P 104
Fabricating hollow obturator with visible light-cured resin system
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The aims of prosthetic rehabilitation in total and partial maxillectomy patients include separation of oral and nasal cavities to allow adequate deglutition and articulation, possible support of the orbital contents, and support of the soft tissue to restore the midfacial contour. In this article, fabrication of the closed hollow obturator has been presented. To decrease the weight of obturator prostheses, several techniques have been developed for the fabrication of a hollow acrylic resin obturator. The method in this procedure for fabricating this hollow
obturator is modified from a technique described by McAndrew. This technique allows for control of wall thickness of the obturator extension, thereby, minimizing the weight of the prosthesis, besides all surfaces all surfaces exposed to the oral cavity are processed with heat-polymerized acrylic resin and light-polymerized resin. This article describes a technique to overcome these problems by using VLC resin. Resultant obturator is, easily and quickly constructed by technicians, provided light, comfortable and tolerated prostheses for patient.

P 105
Rehabilitation of total soft palate defect with an implant retained obturator
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The soft palate defects are extremely varied, ranging from cleft palate to oral malignancy an even to trauma, the methods used to treat patients so afflicted are, for the most part, quite similar. The rehabilitation of maxillary defects is a significant challenge in terms of creating retention and preserving existing dentition in an environment of expanded functional stress. Implants in the defect buttress zone thorough the maxillary sinus in nondefect sites can be valuable in providing a level of functional rehabilitation previously unattainable. Significant differences are found when comparing developmental abnormalities with acquired defects of the soft palate. Obturator prostheses fabricated for patients with surgically created velopharyngeal dysfunction vary by the location and size of the defect. Obturation attempts to reestablish velophoryngeal closure, control nasal emission during speech and assist in preventing nasal regurgitation of food and fluids during swallowing. The patient described 35 years old woman with congenital absence of the soft palate without surgical operation had been performed previously to repair this defect. The patient's soft palatal defect is restored with implant retained obturator for the rehabilitation.

P 106
Prosthetic rehabilitation of an anterior nasomaxillary defect with conventional dentures
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Introduction: The primary goal of prosthetic obturation is closure of the maxillektomy defect and seperation of the oral cavity from the sino-nasal cavities. A successful prosthetic desing for functional restoration of the maxillectomy defect utilizies the remaining palate and dentition to maximize the support, stability and retention of an obturator bulb.
Aim of the Presentation: The aim of this clinical study is to represent the rehabilitation of naso-maxillar defect with simple convantional prosthetic methods.
Case description and the treatment carried out: A 62 year-old man was referred to our clinics by his maxillar surgeon for evaluation. He had a history of osteomyelit releated to his diabetes and had undergo a premaxillar resection. Oral evaluation revealed that the patient was partial edentulous and has a defect that involved the anterior region of the maxilla with a naso-oral opening. A maxillar removable partial denture was suggested as the treatment of choice. Bar attachment, telescopic crowns and obturator bulb were used for the retantion and the stability of the prostheses.

P 107
Unusual vascular hamartoma of the hard palate treated with mold brachytherapy: A case report
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Hamartomas are tumour-like malformations usually present since birth or may develop during puberty. Hamartomas are usually related to anatomical developmental errors which are rarely found in the head and neck district. Here we report our patient with hamartoma of hard palate

treated with brachytherapy. A 13 year-old child was seen by otolaryngologist with the complaint of bleeding from hard palate and upper gingiva. Laser vaporization and biopsy of the lesion was performed. Histopathological examination revealed hamartoma. Two months later, the patient was admitted to the hospital with the same complaint. Surgical excision was treatment of choice. However one month later, he again admitted to the hospital with bleeding. Since radical hard palate resection would be brutal for this child. We decided to continue with mold brachytherapy. A special custom made mold has been prepared. A total of 4000 cGy high dose rate brachytherapy in two occasions were delivered to gingiva and hard palate. The patient did well during and after the treatment and without any complaint during 10 months of follow up. High dose rate bracytherapy avoided brutal surgery with little acute side effects for this child. Brachytherapy is effective and relatively less morbid treatment for patients with intraoral hamartoma.

P 108

A new nasal stent and production procedures

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Most people suffer from nasal water invasion during diving. The water can easily come in the nasal lumen. Nasal Stents (NS) may be utilized in diving. NSs provide a barier between nasal lumen and water. NS should also maintain its position in the nasal lumen while swimming and diving. For all these reasons, a new NS was described to increase comfort. Impressions of the nasal lumen were taken precisely with irreversible hydrocolloid impression material. Each parts were fabricated from clear acrylic resin. Two parts were connected with orthodontic jackscrew expander tomaintain optimal retantion and adaptation in time, and to adjust device individuall y. On the other hand, for adequate adaptation in the nasal lumen, the NS was laid with permanent soft relining material. It can be advised as a barrier during diving.

P 109

Occlusal asymmetry in subjects with and without facial pain

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Facial pain has been shown to be connected with temporomandibular disorders (TMD). It has been considered that occlusal discrepancy can be a predisposing factor to TMD. The aim of our study was to compare the occlusal relationships in subjects with and without facial pain. The population based study is part of the Northern Finland 1966 Birth Cohort Project. A subsample of the cohort was formed using the question concerning facial pain in the computer-aided questionnaire. Based on questionnaire a new inquiry was sent to subjects living in Oulu in the year 2000. The final number of subjects was 104, including 52
(10 men, 42 women) facial pain cases and 52 (10 men, 42 women) non-pain controls. RCP interferences, the amount and lateral deviation of the slide between RCP and IP was recorded. Alginate impressions were taken, and the occlusion was recorded in maximal IP using the wax intended for the analysis of gypsum casts. The bilateral canine relationship and the dental midline were measured on dental casts by the method presented by Pirttiniemi et. al (1991). Independent samples 1-tailed t-test was used for the statistical analysis of the results. Only the lateral occlusal asymmetry was statistically significantly larger in the facial

. No statistically significant difference was noted, however, in dental midline asymmetry, overbite and overjet. Differences were noted in occlusal sagittal relationships between facial pain cases and non-pain controls which may have an influence on facial pain connected with TMD.

P 110

Incongruence of joint surfaces bone structures of the temporomandibular joint shown by computer graphic model

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Temporomandibular Joint (TMJ) is paired and only movable joint of the head. Constant activity and role that it has within the stomatognatic system in performing elementary life functions such as mastication, deglutition, phonation and others make its state and proper functioning have vital

importance for human health. Intensive research on it has been done until now; many original scientific works have been dedicated to the research of the shape, size and position of joint bodies in relation to horizontal, vertical and sagital plane. The aim of this research was to approach measuring and analysis of morphological and anatomic characteristics of bone structures of the articulating surfaces of the jaw joint and their mutual relationship through osteometry, with even more criticism. Macerated skulls of both sexes belonging to white human race, their age ranging from 30 to 45 years, were object of the research. 17 skulls that were congruent with relation of jaws in first class according to Angle with intact dental rows made a sample. Highly precise electronic measuring device with three-D measuring, DEA-A001, type R-08 was used for osteometry. Numerical values that were gotten were inputted in the computer memory. Algorithm was written in a high-level programme language FORTRAN. This is how we obtained graphical models that could satisfy our researches. The result will show the relation of upper and lower joint surfaces in the position of the maximum intercuspidation with the assistance of computer graphical model. Findings in this area wil have therapeutic and practical value as a contribution to the issues of occlusion and articulation.

P 111

MMP expression in condylar surface associated with TMJ internal derangement

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Internal derangement is one of the most common disorder of the temporomandibular joint (TMJ). It is considered to be a risk factor for developing osteoarthrosis (OA) with remodeling of the condyle and the mandibular fossa. Matrix metalloproteinases (MMPs) appear to be major factors in the pathological destruction of articular cartilage.
Aim of our study was to investigate the associations of MMP-3 and -8 expression in articular condylar surface with different stages of TMJ internal derangement.The study was based on 54 condylar specimens obtained during TMJ surgery. The TMJs were classified into two groups according to the disc position diagnosed clinically and radiologically and confirmed at surgery. The first group was diagnosed to have reducing anterior disc displacement, while the second group had non-reducing anterior disc displacement. The stages of TMJ internal derangement were classified into mild, intermediate and severe according to Wilkes classification based on clinical, surgical and pathological stages. The pathogenesis of TMJ OA in these specimens was examined and classified into four stages according to Dijkgraaf et al. Immunohistochemistry using antibodies specific to MMP-3 and -8, represented in cartilage destruction, was carried out. Fisher´s exact test was used for statistical analysis. A difference of $p<0.05$ was considered significant. In all tissue specimens, MMP-3 expression was intense in the surface layer but showed less intensive staining in the deeper layers. Some MMP-8 expression was also seen. The severity of TMJ internal derangement, however, did not seem to have a statistically significant correlation ($p<0.05$) with the expression of these enzymes. Based on the immunostained specimens, it seems that MMP-3 and MMP-8 expression in the articular condylar surface is associated with progression of the pathological changes in the TMJs with reducing and non-reducing anterior disc dislocation.

P112

TMD prevalence in war veterans with PTSD

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The etiology of temporomandibular disorders (TMD) remains controversial. The role of stress is still under discussion.
Aim: The aim of this study was to determine the prevalence of clinical signs of TMD in a group of Croatian War Veterans with posttraumatic stress disorder (PTSD) occuring as a conseguence of exposure to war stress.
Materials and Method: A group of 100 male subjects ($x=35.56\pm6.12$, range 25-52) who had participated in the War in Croatia and had PTSD was examined. The control group comprised 96 subjects of the same sex and age ($x=34.5\pm7.67$, range 24-51) who hadn't participated in the war and hadn't PTSD (Harvard trauma Questionaire). The examination was performed by means of an original clinical protocol.
Results: Eighty two per cent of the group with PTSD had at least one sign of TMD compared to 24% of the healthy subjects (Chi-square 55.26; $p<0.0001$). Sound in TMJ was the most frequent sign in both groups (61,7% in PTSD group, 18% in healthy subjects, Chi-square 19.42; $p<0.0001$). The greatest difference between the groups is related to pain during mandibular movements (36,2% PTSD

group, 2% healthy subjects, Chi-square 18.72; p<0.0001) and masticatory muscle and TMJ tenderness (53,2% PTSD group, 2% healthy subjects, Chi-square 32.36; p<0.0001).
Conclusion: High presence of clinical signs in exameenes with PTSD and statistically significant difference compare to healthy control group confirms the important role of war stress on the genesis of TMD.
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P 113
The influence of bruxism on temporomandibular joint sounds
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The influence of bruxism on the development of signs and simptoms of TMD is unclear, some investigation reporting a positive relation between the two and others not.
Objective of investigation: The aim of the present study was to examine the association between bruxism and TMJ joint sounds.
Method: A group of 46 bruxers, aged from 24-52 years (X=35.03±6.92) was examined. The control group consist of 50 nonbruxers, aged from 25-51 years (X=37.24±6.37). Bruxism was assessed by questionnaire and by clinical examination. Sounds was registered by means of a clinical examination and auscultation by stethoscope and classified according to character in click or crepitation.
Results: Temporomandibular joint sounds were present in 43,5% of bruxers compared to 20% of nonbruxers (Chi-square 12,294 p<0,001). The most frequently sound in both groups was click. Click was present in 39,1% of bruxers and 20 % of nonbruxers (Chi-square 8,488, p<0,01). Crepitation was present only in the group of bruxers 6,4% (Chi-square 6,732 p>0,05).
Conclusion: The results of this investigation indicate that bruxism may have influence on temporomandibular joint sounds.
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P 114
TMD associated with mandibular advancement device therapy in sleep apnea
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Mandibular advancement device is designed to treat obstructive sleep apnea and snoring. The device produce a widening of upper airways by holding the mandible forwards and downwards. The one-piece device is fabricated in hard acrylic and the patient wears the device during the sleep. The aim of this study was to evaluate the effect of mandibular advancement device treatment on signs and symptoms of temporomandibular disorders (TMD). The material consisted of 17 patients suffering from obstructive sleep apnea and/or snoring. The treatment with the device was recommended by the physician. The clinical stomatognathic examination was performed before the device treatment, one month and three months after the device was performed. Two patients could not wear the device because of symptoms in temporomandibular joint and discomfort in teeth. For one patient the device was adjusted due to the symptoms in temporomandibular joint, and the symptoms were relieved. 14 patients wore the device regularly. The signs and symptoms of TMD were at the same level as before treatment. The results of the three months follow-up show that the mandibular advancement device used in treatment of obstructive sleep apnea and/or snoring may occasionally provoke signs and symptoms of TMD.

P 115
Temporomandibular dysfuntion patients treated with occlusal adjustment: Case reports
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Selective grinding of occlusal surfaces of the teeth can eliminate premature contacts and occlusal interferences and establish optimal masticatory effectiveness, stable occlusal relationships. An occlusal examination should be performed before any type of invasive treatment. Occlusal adjustment procedure is an irreversible process and should be undertaken only after the practitioner is highly

experienced. The procedure must be realised first on mounted casts in a semi-adjustable articulator. If it is determined that the tooth removal is so significant that the dentin may be exposed, the patient should not undergo an occlusal adjustment, instead treated with restorations. Two patients in this report, referred to our clinic with temporomandibular joint pain and muscle tenderness. The first case was a 35 year old male, there was a 2mm straight forward slide from centric relation to intercuspal position. The second case was 50 year old female with open bite. The patient had 5 mm open bite between the anterior teeth with occlusal contacts only on the second and third molars. For both of the patients accurately mounted casts were examined and premature contact areas were determined and adjusted on the casts and were recorded. After visualising the satisfactory results on the casts occlusal adjustment was achieved on natural teeth. Occlusal adjustment was performed on three subsequent appointments. Selective grinding may be an effective treatment modality in many patients with temporomandibular disorders.

P 116
Differential diagnosis of temporomandibular disorders
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Temporomandibular disorders affect the majority of the population and a successful treatment can be achieved by an appropriate classification both clinically and radyographically.
The aim of this study was to determine the differential diagnostic criteria of the patients presenting with complaints related with temporomandibular joints (TMJ). A total of 29 patients (18 muscular disorders, 11 internal derangements) applied to Ege University Faculty of Dentistry, Prosthodontics Clinic with TMJ complaints were included in the study. The control

group consisted of 10 healthy subjects without any TMJ complaints. All subjects were examined with clinical questionairres. Magnetic Resonance Imaging (MRI) was obtained from patients with suspicion of internal derangement. SPSS 10.0 for windows (1999 SPSS Inc, USA) software was used to evaluate the clinical questionairres. There was a significant correlation between the internal derangement group and the muscle involved group in terms of TMJ pain and sounds ($p<0.05$). Mouth opening without pain, protrus ive and retrusive movemens and deviation during opening were found to be significant among 3 groups. The relationship between internal derangement and muscle involvement stages were insignificant.
MR images of the internal derangement group seperately were graded for right and left TMJs and the disc was observed to be positioned anteriorly. Temporomandibular disorders can be clinically differentiated with further studies including greater population. MRI is a necessary procedure in determining the position and the shape of the disc.

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Clinical decision making in prosthdontics: An assessment of 5th year students
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Prior to starting a comprehensive prosthetic treatment, decision-making process maybe the most important step leading to success in dental practice. The aim of this study was assess diagnostic thinking and management abilities of 5th year dental students. Using 5 cases, simulated patient models were prepared and an assessment form consisted of 10 criteria that should be considered during decision making process were developed. 18 students were selected and interviewed. The suggestions of the students about treatment planning for the five cases were recorded. The data were statistically evaluated.

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