



THE UNIVERSITY *of* TEXAS

DENTAL BRANCH AT HOUSTON

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RESEARCH NEWS

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Managing Editor:
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Dental Branch Research News

Volume 3, Number 2, October, 2004

The University of Texas Dental Branch at Houston
Research Office

Editor-in-Chief - Karen Adler Storthz, Ph.D.
Managing Editor - John M. Powers, Ph.D.

Editors' Note

The goals of this newsletter are to:

- > inform our university and alumni community about research activities at the Dental Branch,
- > recognize research accomplishments achieved by our faculty, staff and students,
- > inform researchers of new HSC policies, and
- > publicize upcoming deadlines and events.

Previous issues of Dental Branch Research News can be found on the Dental Branch Research Office website: <http://www.db.uth.tmc.edu/research/newsletter.htm>.

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Items of Interest

Summary of Research Presentations

Faculty of the Dental Branch gave 6 oral and poster presentations at the 5th Annual Advances in Teaching and Learning Regional Conference 2004 held in Houston, TX, February 26, 2004.

Faculty of the Dental Branch gave 3 presentations and 4 workshops at the Annual Meeting of the American Dental Education Association (ADEA) held in Seattle, WA, March 6-9, 2004.

Faculty, residents and pre-doctoral students of the Dental Branch gave 37 oral and poster presentations at the Annual Meeting of the International Association for Dental Research (IADR) held in Honolulu, HI, March 10-13, 2004. Abstracts of these

presentations were published in Dental Branch Research News, Vol. 3, No. 1, January 2004.

Numerous other presentations by Dental Branch faculty were given at specialty meetings (see listing below).

Two of our faculty gave scientific presentations at the 2004 Annual Meeting of the Academy of Dental Materials in Geneva, Switzerland, October 21-23, 2004. Abstracts of these papers are included in this issue.

Ten of our dental students have been accepted to give scientific presentations at the 2004 Hinman Student Research Symposium in Memphis, TN, October 29-31, 2004. Abstracts of these papers are included in this issue.

New to this issue of the Dental Branch Research News is a listing of students who participated in research this summer.

Also new to this issue of the Dental Branch Research News is a listing of Master's theses of residents who have graduated and faculty of the Dental Branch.

Grants Update (January - August, 2004)

Principal Investigators of Grants and Contracts*

Chang, J. Parkell, Inc. Microleakage of Human Teeth with 3 Dentin Bonding Agents, \$2,764.

D'Souza RN. National Institute of Dental and Craniofacial Research, T32 DE015355-02, UT-H Comprehensive Research Training Program, \$692,638 (Co-PI - Stancel).

Duke PJ. NASA, Dentists on Mars, \$7,400.

Duke PJ. NASA, Evaluation of a NASA Hydrofocusing Bioreactor, \$1,212.

Gateno J. Andrew Christensen Medical Modeling (NIH/STTR), Computer Surgical Simulation for Craniofacial Surgery, \$35,027 (Co-PI – Xia).

Koh S. Premier Dental Products, Clinical Evaluation of the Bleaching Efficacy of Two Different Methods, \$8,399.

Lou Y. National Institute of Diabetes, Digestive, and Kidney Diseases, minority supplement to support Dr. Lisa Torres, Role of T Cells in Mediating Glomerulonephritis, \$33,125.

Lou Y. National Institute of Diabetes, Digestive, and Kidney Diseases, Role of T Cells in Mediating Glomerulonephritis, \$148,751.

Lou Y. National Institute of Diabetes, Digestive, and Kidney Diseases, Antibody Directs T Cell Mediated Autoimmunity, \$99,418.

Lou Y. Baylor College of Medicine, Minimal Change Disease Study, \$26,000.

O'Keefe KL. Kuraray America, Bond Strength of Resin Composite to Pre-treated Enamel, \$7385 (Co-PI - Powers, Pinzon).

O'Keefe KL. Kuraray America, Bond Strength of All-in-One Adhesives to Enamel and Dentin, \$9231 (Co-PI - Powers, Pinzon, Santiago-Doyle).

Ontiveros J. Kerr Corporation. Testing LEDemetron/Kerr Adhesives, \$3,846.

O'Neill P. American Medical Student Association Foundation, Achieving Diversity in Dentistry and Medicine, \$9,882.

O'Neill P. American Dental Education Association. Correlations between Endodontic Faculty and Residents' Personality Traits, \$4,940.

Pileggi R. American Association of Endodontists Foundation. Propolis: An Innovative Treatment for Dental Research, \$4,530.

Powers JM. GC America, Bond Strength of Adhesive Systems to Tooth Structure as Affected by Moisture, \$12,308 (Co-PI - Pinzon).

Powers JM. GC America, Properties of Exaimplant, \$3,846 (Co-PI Lu).

Powers JM. Ivoclar Vivadent AG, Effect of Polishing Procedures on Surface Texture Parameters and Gloss of Eight Resin composites with Two Polishing Systems, \$9846 (Co-PI - Roeder, Lu).

Powers JM. Dentsply Professional, Bond Strength of Pit and Fissure Sealants in Contaminated Environments, \$1,923 (Co-PI - Pinzon).

Powers JM. Discus Dental, Flexural Properties of Modified Resin Composite, \$769 (Co-PI - Lu).

Powers JM. University of Michigan. Color Stability of Ceramics, \$769 (Co-PI - Lu).

Powers JM. Pentron Clinical Technologies, Bond Strength of Experimental Nano-Bond 2, \$1,231 (Co-PI - Pinzon).

Powers JM. Tokuyama Dental Corp., Wear of New Resin Composites, \$1,846 (Co-PI - Lee).

Powers JM. Dentsply DeTrey, Bond Strength of K-0127 Formulations to Enamel and Dentin, \$4,923 (Co-PI - Pinzon).

Powers JM. Dentsply/Caulk, Bond Strength of bonding Agent 1P-SEA, \$1,231 (Co-PI - Pinzon).

Powers JM. Heraeus Kulzer, Bond Strength of Estiseal F with iBond in Contaminated Environments, \$1,923 (Co-PI - Pinzon).

Powers JM. Heraeus Kulzer, Surface Roughness and gloss of Venus with iPOL, \$385 (Co-PI - Roeder).

Powers JM. 3M ESPE, Bond Strength of Experimental Bonding Agent, \$3,692 (Co-PI - Pinzon).

Powers JM. 3M ESPE AG, Bond Strength of Silorane Composite, \$6,154 (Co-PI - Pinzon).

Powers JM. Pentron Laboratory Technologies, Effect of Cements/Alloys on Bond Strength of Cast Posts, \$1,846 (Co-PI - O'Keefe).

Powers JM. Cooley & Cooley, Properties of New Cements and Liners, \$385 (Co-PI - Lu).

Powers JM. Dental Consultants, Inc., In Vitro Properties of Dental Materials, \$23,077 (Co-PI - Lu).

Powers JM. Pentron Clinical Technologies, Bond Strength of Nano-Bond - Revised Technique, \$2,462 (Co-PI - Pinzon).

Powers JM. Centrix, Inc., Bond Strength of Supercure Composite Core Material to Dentin, \$1,846 (Co-PI - Pinzon).

Powers JM. Bisco, Inc., Bond Strength of Tyrian/One-Step Plus, \$1,231 (Co-PI - Pinzon).

Powers JM. 3M ESPE, Bond Strength of Filled Dental Adhesive, \$6,154 (Co-PI - Pinzon).

Powers JM. Coltene/Whaledent, Bond Strength of One Coat SE Bond, \$1,846 (Co-PI - Pinzon).

Qin C. National Institute Dental and Craniofacial Research, Studies of Proteins Involved in Dentinogenesis, \$250,000 (Co-PI - Butler).

Wong M. Rice University (subcontract on grant from National Institute of Dental and Craniofacial Research, Promotion of Alveolar Socket Healing with Biopolymers, \$95,746.

*Funds reported as direct costs awarded in FY 2004.

Summary of Grants - FY 2004

	<u>Number of Proposals Submitted</u>	<u>Number of Proposals Funded</u>	<u>Direct Costs Awarded, \$</u>
TOTAL	120	65	2,187,675

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Faculty Awards and Honors

Drs. Catherine Flaitz, Jung-Wei Chen and John Hicks were the recipients of the 2004 American Academy of Pediatric Dentistry Foundation Research Award for the paper, Flaitz C, Ramachandron P, Chen JW, Sexton J, and Hicks J: Reduction in Langerhans cells in gingival epithelium from HIV-infected children. The paper was presented by Dr. Flaitz at the American Academy of Pediatric Dentistry Annual Meeting, San Francisco, CA, May 2004.

Drs. John Hicks and Catherine Flaitz were the recipients of the 2004 American Academy of Pediatric Dentistry Foundation Research Award for the paper, Hicks J, Flaitz C: Role of remineralizing fluid in *in vitro* enamel caries formation and progression. The paper was presented by Dr. Hicks at the American Academy of Pediatric Dentistry Annual Meeting, San Francisco, CA, May 2004.

Dr. Art Jeske serves as the Chairman of the American Dental Association Council on Scientific Affairs.

Dr. Leticia Perezous has been chosen as a finalist for the 2004 American College of Prosthodontists (ACP) John J. Sharry Competition. She will present her manuscript, "The effect of complete dentures with a metal pallet on *Candida* species in H.I.V. infected patients," at the ACP meeting in Ottawa, Ontario, Canada, Oct. 27-30, 2004.

Student Awards and Honors

Adrienne Andress won third place in the dentist category of the Star of the South table clinic competition. Her table clinic was entitled, "Oral Manifestations of Substance Abuse." Her faculty sponsor is Dr. Cleverick D. Johnson.

Dr. Winifred Dike won second place in the Table Clinic presentation of the American Prosthodontic Society in Chicago, IL, February 19-20, 2004. Her mentor is Dr. Kelly Peters.

Ashley Farrar won first place in the dental student category of the Star of the South table clinic competition. Her presentation was "Effects of Tobacco Smoke on Children's

Dental Health." She will represent the Dental Branch at the SCADA national table clinic competition at the ADA meeting in Orlando, FL, in October 2004. Her mentor is Dr. Susan Seybold.

Julia A. Javarone was awarded a 2004 AADR Student Research Fellowship at the IADR Annual Meeting in Honolulu, HI, March 10-13, 2004. Her mentor is Dr. Rena D'Souza.

Julia A. Javarone was elected President of the National Student Research Group. Her mentor is Dr. Rena D'Souza.

Dr. Chun-Nun Lin won third place in the Table Clinic Presentation of the American Prosthodontic Society in Chicago, IL, February 19-20, 2004.

Dr. Margaret J. Martin won the AAE/Dentsply Resident Award at the Annual Meeting of the American Association of Endodontists in Anaheim, CA, May 5-8, 2004. Her mentor is Dr. Roberta Pileggi.

Dr. Kathleen R. McGrory received a 2004 Colgate-Palmolive Research Award from the American Association of Women Dentists. Her mentors are Drs. John M. Powers and Jeryl English.

Kevin McGrory won second place in the dental student category of the Star of the South table clinic competition. His table clinic was entitled, "Periodontics in the esthetics zone." His mentor is Dr. Gisela Anderson.

Leslie Ng, Christina Cole, Anna Miner, Shanna Watkins, and Opal Wood won third place in the dental hygiene category of the Star of the South table clinic competition. Their table clinic was entitled, "Wylitol: Can Chewing Gum Prevent Caries?" Their mentor is Ms. Donna Rice.

At the 2004 Dental Branch Senior Awards Banquet, **Dr. Kevin Otten** received the American Association for Oral Biologists award. **Dr. Kathleen McGrory** received the Quintessence Award for Research. **Dr. Ryan Oakley** received the research award from the Houston Chapter of the AADR.

Dr. Leticia Perezous won first place at the table clinic presentation of the American Prosthodontic Society in Chicago, IL, February 19-20, 2004.

Tina Vasquez, Amber Ragland, Heather Wilson, and Kristen Brodie won first place in the dental hygiene category of the Star of the South table clinic competition. Their table clinic was entitled, "Bilateral submucosal cleft palate: an incidental finding in a 68 year old male." Their mentors are Ms. Jayne McWherter and Dr. Nadarajah Vigneswaran.

David Wan won third place in the dental student category of the Star of the South table clinic competition. His table clinic was entitled, "Post-operative Pain- What we can do?"

His mentor is Dr. Roberta Pileggi.

Students - Summer Research

Abramian J. Development of targeted viral vectors to skeletal muscle cells for delivery of therapeutic genes. Supported by NIH T32-DE015355-01. (Mentor - Barry)

Ainley C. Characterization of the transcriptional defects off AP-2 and AP2.2 in FOLBP1 knockout mice. Supported by NIH T32-DE015355-01. (Mentor - Finnell)

Baucum D. Clinical implications of TNF-related apoptosis inducing ligand (TRAIL) and its receptors in oropharyngeal squamous cell carcinomas (OSCC). Supported by NIH T32-DE015355-01. (Mentor - Vigneswaran)

Beerbower M. Supported by Medical School Student Research Fellowship Program and the Dental Branch Research Office. (Mentor - Kiat-amnuay)

Brownfield L. The effect of fluoride varnish in Mulukuku. Supported by the Dental Branch Research Office. (Mentor - Hobdell)

Bui NAT. Bacteria in periodontal disease. Supported by NIH T32-DE015355-01. (Mentor - Lou)

Burakowski C. Pain suppression mechanism. Supported by NIH T32-DE015355-01. (Mentor - Dafny)

Doan L. Adhesion of normal and HME chondrocytes to fibronectin in the presence of heparin. Supported by NIH T32-DE015355-01. (Mentor - Duke)

Fairley K. Identifying nonsyndromic cleft lip and palate genes. Supported by NIH T32-DE015355-01. (Mentor - Hecht)

Gaur A. Bond strength of resin composite to dentin contaminated with blood. Supported by NIH T32-DE015355-01. (Mentor - Powers)

Givens SJ. A cross-cultural study of OIDP scores from Mulukuku, Nicaragua and Houston, TX, USA. Supported by NIH T32-DE015355-01. (Mentor - Hobdell)

Guzman C. Antigen specificity of antibody in gingival sulcus fluid. Supported by NIH T32-DE015355-01. (Mentor - Lou)

Haikal F. Photodynamic effects with soluble chlorophyll and cure lights on oral pathogen survival. Supported by Medical School Student Research Fellowship Program and the Dental Branch Research Office. (Mentor - Goldschmidt)

Harden J. 3D adipose tissue generation and functional variation. Supported by NIH T32-DE015355-01. (Mentor - Patrick)

James J. Establishment of the critical size defect and histological analysis of angiogenesis within the alveolar bone of a rabbit model. Supported by NIH T32-DE015355-01. (Mentor - Mikos)

Javarone J. Phenotypic changes in dentition of Runx2 homozygote null mutant mice. Supported by NIH T32-DE015355-01. (Mentor - D'Souza)

Jaynes B. Identifying nonsyndromic cleft lip and palate genes. Supported by NIH T32-DE015355-01. (Mentor - Hecht)

Laimidi AO. Screening serum of lung cancer patients for markers of cancer vascularity prolonging oral persistence of bacterial peptide delivery vectors. Supported by the Dental Branch Research Office. (Mentor - Oh)

Miller JH. Color variances between corresponding tooth forms of opposing arches. A pilot study. Supported by the Research Office. (Mentor - Paravina)

Olson T. Bioengineering of human root implants. Supported by NIH T32-DE015355-01. (Mentor - D'Souza)

Pahlavan P. Instructional multimedia design for pulpotomy treatment. Supported by NIH T32-DE015355-01. (Mentor - Phelps)

Phan K. Interactions between Msx1 and Pax9 in tooth agenesis. Supported by NIH T32-DE015355-01. (Mentor - D'Souza)

Rivera BM. Color variances between tooth forms of the same arch. A pilot study. Supported by the Research Office. (Mentor - Paravina)

Santiago-Doyle V. Tensile bonding strength of all-in-one adhesives to enamel and dentin. Supported by NIH T32-DE015355-01. (Mentor - O'Keefe)

Shevchenko L. Retrospective study of dental implants in cancer patients. Supported by NIH T32-DE015355-01. (Mentor - Miller)

Presentations

Paper Delivered at NASA Cell Biology Meeting, Palo Alto, CA, February 17-19, 2004.

Montufar-Solis D, Hecht J, Duke PJ*. Intracellular retention of chondroitin sulfates 4 and 6 in human bone-forming cartilage cultured in the hydrodynamic focusing bioreactor.

Papers Delivered at the Annual Meeting of the American Cleft Palate-Craniofacial Association, Chapel Hill, NC, March 13, 2004

Gateño J, Xia JJ, Engel E, Teichgraeber JF*, Yamaji K. The use of a new Le Fort I internal distraction device in the treatment of severe maxillary hypoplasia.

Teichgraeber JF*, Ezzat C, Chavarria C, Stratmann R, Chen JW, Xia JJ. Pre-surgical nasopalveolar molding in unilateral cleft patients.

Paper Delivered at the Annual Meeting of the American Cleft Palate Association, Chicago, IL, March 17-18, 2004.

Bahl S*, Williams S, Radcliffe J, Khan E. Assessment of nutritional status in a population of patients with cleft lip and/or palate.

Paper Delivered at Workshop for Tissue Engineering/Regenerative Medicine. London, March 29-30, 2004.

Montufar-Solis D, Nguyen HC, Nguyen HD, Horn WN, Cody CD, Hecht J, Duke PJ*. Using bone-forming cartilage to repair bone: an alternative approach in tissue engineering.

Paper Delivered at the 57th Annual Meeting of The American Academy of Oral Medicine, Key Biscayne, FL, April 21, 2004

Moretti AJ*, Nichols CM, Flaitz CM. A case report of Herpes Zoster virus affecting the periodontium.

Papers Delivered at the Annual Meeting of the American Association of Endodontists, Anaheim, CA, May 5-8, 2004

Benjamin SM*, Moses KD*. Contemporary endodontic therapy and allergens: Have we opened Pandora's box?

Hosein FG*, Atkinson JS*. Relative and absolute contraindications to vasoconstrictor use in medically compromised dental patients.

Martin MJ*. A quantitative analysis of Propolis: A promising storage media following avulsion.

Schnoor ZP*. The cleaning efficacy of different instrumentation techniques in oval canals.

Svec T*. Properties of nickel titanium rotary endodontic instruments.

Papers Delivered at the American Academy of Oral and Maxillofacial Pathology Annual Meeting, Charleston, SC, May 8-12, 2004

Flaitz C*, Neville B, Hicks J. Extrapleural solitary fibrous tumor of the oral cavity: Proliferation markers, tumor suppressor gene expression and ultrastructural features.

Kurago ZB*, Hicks J, Flaitz C, Kloberdanz B. Sclerosing myoepithelial neoplasm: Immunohistochemical and ultrastructural features in a unique case.

Hicks J*, Flaitz C. Pericytic tumor with *GLI* oncogene and *beta-actin* translocation [T(7;12)].

Vigneswaran N*, Wu J, Zacharias W. Cystatin overexpression in metastatic oral cancer cells confers them greater resistance to TRAIL-induced apoptosis.

Papers Delivered at the Annual Meeting of the American Academy of Pediatric Dentistry, San Francisco, CA, May 2004

Flaitz C*, Ramachandron P, Chen JW, Sexton J, Hicks J. Reduction in Langerhans cells in gingival epithelium from HIV-infected children.

Hicks J*, Flaitz C. Role of remineralizing fluid in *in vitro* enamel caries formation and progression.

Westerman G*, Hicks J, Flaitz C. Argon laser and fluoride treatment: Effect of reduced exposure time on *in vitro* enamel caries.

Paper Delivered at the 5th International Oral AIDS Meeting, Thailand, July 2004

Glick M*, Abel SN, Flaitz CM, Migliorati CA, Patton LL, Phelan JA, Reznik DA. Classification of oral diseases of HIV-associated immune suppression (DHIS). Abstract presented at the 5th International Oral AIDS Meeting in Thailand, July 2004.

Papers Delivered at the Portland Composites Symposium, Oregon Health & Science University, Portland, OR, June 17-19, 2004

Lu H*, Roeder LB, Lei L, Powers JM. Stain resistance of dental resin.

Paravina R*, Kimura M, Powers JM. Blending of composites and cavity size.

Paper Delivered at the Workshop on Intestinal Immunity, British Gastroenterology Society, Dublin Ireland, June, 2004

Klein JR*. T cell activation in the intestinal mucosa.

Paper Delivered at the 12th International Congress of Immunology, Montreal, Quebec Canada, July 13-18, 2004

Montufar-Solis D, Wang H, Teng B, Klein JR*. Two functional populations of murine small intestinal intraepithelial lymphocytes defined by CD43 isoform expression.

Paper Delivered at the Annual Meeting of the American Anaplastology Association, Cleveland, OH, July 24-27, 2004

Kiat-amnuay S*, Gettleman L, Anderson JD, Johnston DA, Jacob RF. Randomized controlled multicenter trial comparing chlorinated polyethylene with silicone elastomer for facial prosthetics.

Paper Delivered at the 16th Annual International Conference on Special Care Issues in Dentistry and the 17th Congress of the International Association for Disability and Oral Health, Banff/Calgary, Alberta, Canada, August 21 and 24-27, 2004

Bebermeyer R*. Oral health care in remote areas of developing nations.

Papers Delivered at the Annual Meeting of the Academy of Dental Materials, Geneva, Switzerland, October 21-23, 2004

Pinzon LM*, Powers JM. Microtensile bond strength of adhesives to affected and healthy dentin.

Roeder LB*, Lu H, Powers JM. Surface texture parameters and gloss of two composites with different nanofiller configurations.

Paper to be Delivered at the American Society for Gravitational and Space Biology, NY, NY, November 9-12, 2004

Callejas W, Doan L, Marsh M, Duke PJ. Phototaxis and aerotaxis in a calcifying alga.

Publications

Master's Theses (2004 Graduates)

Alarcon J. Wear testing of retorative materials and enamel opposing removable partial denture alloy. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Triolo)

Artopoulou I. Effect of surface conditioning and core dimension on the tensile retentive force of core materials to metallic and glass fiber endodontic posts. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - O'Keefe)

Cain KK. Effect of an orthodontic bonding sealant on caries-like lesion formation in enamel: A polarized light microscope study. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - English)

Caram SJ. Microleakage of Empress crowns using self-etching resin cements. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Trajtenberg)

Freels C. Force deflection comparisons of .018 and .022-inch bracket slot sizes. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - English)

Holt C. A real time quantitative PCR analysis and correlation of COX1 and COX2 enzymes in inflamed pulps following the administration of three different NSAIDs. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Pileggi)

LeCrone V. Clinical evaluation of an orthodontic self-etching primer. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Salas)

Lee RP. Long-term treatment results of deformational plagiocephaly: a five year follow-up. Master's Thesis, University of Texas Health Science Center at Houston Dental

Branch, Houston, 2004. (Chair - Teichgraeber)

Leung L. Microleakage of bur-prepared composite restorations with self-etching adhesives applied to dry or moist dentin. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Trajtenberg)

Mata A. Occupational risk and prevalence of Hepatitis B among dental professionals along the Texas-Mexico border, during the year 2004. Master's Thesis, University of Texas Health Science Center at Houston School of Public Health, Houston, 2004. (Chair - Grimes)

Ontiveros J. Intensity of light-emitting diode irradiance through various ceramic thicknesses and opacities. Master's Thesis, University of Texas Health Science Center at Houston Graduate School of Biomedical Sciences, Houston, 2004. (Chair - Powers)

Perezous L. The effect of complete dentures with metal palate on Candida species growth in HIV infected patients. Master's Thesis, University of Texas Health Science Center at Houston Graduate School of Biomedical Sciences, Houston, 2004. (Chair - Stevenson)

Pisklak CW. Frictional Evaluation of silica-coated ceramic brackets. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Salas-Lopez)

Shannon M. The effect of self-etching adhesives on sealant bond strength. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Powers)

Solomon M. Long-term stability of lip bumper therapy followed by fixed appliances. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - English)

Weller PJ. Remaining dentin thickness in the apical four millimeters following four cleaning and shaping regimens. Master's Thesis, University of Texas Health Science Center at Houston Dental Branch, Houston, 2004. (Chair - Svec)

Abstracts

Bahl S, Williams S, Radcliffe J, Khan E. Assessment of nutritional status in a population of patients with cleft lip and/or palate. Am Cleft Palate Assoc Abstract Book, pg 87, 2004.

Chen JW, Flaitz C, Taylor D. Cognitive evaluation of web-based differential diagnosis course support material. Proceedings from 2004 Teaching and Learning Day, UTHSC-H, February 2004.

Flaitz C, Neville B, Hicks J. Extrapleural solitary fibrous tumor of the oral cavity: Proliferation markers, tumor suppressor gene expression and ultrastructural features. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 98:206, 2004.

Flaitz C, Ramachandron P, Chen JW, Sexton J, Hicks J. Reduction in Langerhans cells in gingival epithelium from HIV-infected children. *Pediatr Dent* 26:188-189, 2004.

Glick M, Abel SN, Flaitz CM, Migliorati CA, Patton LL, Phelan JA, Reznik DA. Classification of oral diseases of HIV-associated immune suppression (DHIS). Proceedings of the 5th International Oral AIDS Meeting in Thailand, July 2004.

Hicks J, Flaitz C. Pericytic tumor with *GLI* oncogene and *beta-actin* translocation [T(7;12)]. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 98:207, 2004.

Hicks J, Flaitz C: Role of remineralizing fluid in *in vitro* enamel caries formation and progression. *Pediatr Dent* 26:189, 2004.

Kiat-amnuay S, Gettleman L, Anderson JD, Johnston DA, Jacob RF. Randomized controlled multicenter trial comparing chlorinated polyethylene with silicone elastomer for facial prosthetics. *Trans Amer Anaplastol Assoc* 18: 2004.

Kurago ZB, Hicks J, Flaitz C, Kloberdanz B. Sclerosing myoepithelial neoplasm: Immunohistochemical and ultrastructural features in a unique case. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 98:205, 2004.

Moretti AJ, Nichols CM, Flaitz CM. A case report of herpes zoster affecting the periodontium. Proceedings from the American Academy of Oral Medicine Annual Meeting, Key Biscayne, FL, April 21-24, 2004.

Nagathihalli N, Vigneswaran N, Zacharias W. Mechanism of hypoxia-mediated apoptosis in oral carcinoma cells. Proceedings of the American Society of Biochemistry & Molecular Biology Annual Meeting, 2004. In: Late-braking abstract addendum, p.1; [Abstract # B343].

Okte Z, Villalta P, Garcia-Godoy F, Lu H, Powers JM. Surface hardness of restorative materials after staining and bleaching. *J Dent Res* 83:2004 [Abstract 144]. - IADR-CED Istanbul Aug 25-28, 2004.

O'Neill PN, Powers JM, Bilan J. Developing and implementing a faculty development enrichment research program for dental educators. Proceedings from 2004 Teaching and Learning Day, UTHSC-H, January 2004.

Paravina R, Powers JM, O'Neill PN. Effects of education and training on color matching results of DDS students: a pilot study. Proceedings from 2004 Teaching and Learning Day, UTHSC-H, February 2004.

Westerman G, Hicks J, Flaitz C. Argon laser and fluoride treatment: Effect of reduced exposure time on *in vitro* enamel caries. *Pediatr Dent* 26:198, 2004.

Wickramasinghe N, Banerjee K, Nagathihalli N, Vigneswaran N, Zacharias W. Hypoxia-dependent proliferation and protease expression in oral carcinoma cell lines.

Proceedings of the 95th American Association for Cancer Research, p. 162, 2004.
[Abstract # 1822].

Papers

Aberg T, Cavender A, Gaikwad JS, Bronckers AL, Wang X, Waltimo-Siren J, Thesleff I, D'Souza RN. Phenotypic changes in dentition of Runx2 homozygote-null mutant mice. *J Histochem Cytochem*. 52:131-139, 2004. Erratum in: *J Histochem Cytochem* 52:841, 2004.

Alapati SB, Brantley WA, Svec TA, Powers JM, Nusstein JM, Daehn GS. Proposed role of embedded dentin chips for the clinical failure of nickel-titanium rotary instruments. *J Endod* 30:339-341, 2004.

Baba O, Qin C, Brunn JC, Jones JE, Wygant JN, McIntyre BW, Butler WT. Detection of dentin sialoprotein in rat periodontium. *Eur J Oral Sci* 112:163-170, 2004.

Bebermeyer R. Commentary - Water fluoridation and Downs Syndrome evidence inconclusive. *Evidence-Based Dent J* 5: 39, 2004.

Bouquot JE, McMahon RE. Charlatans in dentistry: ethics of the NICO wars. *J Amer Coll Dent* 70:38-41, 2004.

Cangialosi TJ, Riolo ML, Owens SE Jr, Dykhouse VJ, Moffitt AH, Grubb JE, Greco PM, English JD, James RD. The ABO's 75th anniversary: a retrospective glance at progress in the last quarter century. *Am J Orthod Dentofacial Orthop* 125:279-283, 2004.

Cangialosi TJ, Riolo ML, Owens SE Jr, Dykhouse VJ, Moffitt AH, Grubb JE, Greco PM, English JD, James RD. The ABO discrepancy index: a measure of case complexity. *Am J Orthod Dentofacial Orthop* 125:270-278, 2004.

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HSC Research Policies Update

Effective October 1, 2004, CPHS applications may be submitted at any time during the month. All CPHS applications should be routed through the Dental Branch Research Office for review and approval. CPHS committees will review projects on the first and third Fridays of each month. Note - Be sure your certificate of human subjects research training is current.

Important Dates - 2004-2005

Hinman Student Research Symposium - October 29-31, 2004

HSC Research Day (10th Anniversary) - November 19, 2004
IADR/AADR meeting (Baltimore, MD) - March 9-12, 2005

Microtensile Bond Strength of Adhesives to Affected and Healthy Dentin.

LM Pinzon, JM Powers. Houston Biomaterials Research Center, University of Texas Dental Branch at Houston, TX, USA.

The purpose of this study was to determine the bond strength, tag length and morphology in vitro of adhesives bonded to affected human dentin with different caries removal techniques as compared to healthy dentin. Methods: 6 freshly extracted healthy human teeth were ground to expose superficial dentin and polished with 600-grit SIC paper. 12 freshly extracted (2 days after extraction) carious human teeth were divided into 2 groups; one was prepared using caries dye detector (Seek, Ultradent) and excavator (Hu-friedy), the other group was prepared using Seek and a caries removal bur (SmartPrep, SS WHITE). Each adhesive (Adper Single Bond Plus (SBP), Adper Prompt (AP); 3M ESPE) was bonded to the dentin substrate following the manufacturer's instructions. The composite (Filtek Z250, 3M ESPE) restoration was built in 3, 2-mm increments on the bonded surface. Specimens were sectioned in 1-mm sticks with a slow-speed diamond saw. Microtensile bond strengths were determined at 24 hours on a testing machine (Instron) at 0.5 mm/min. Failures and bonded areas were measured using a microscope (Optispec, Microenterprises). SEM (JSM – 820, JEOL) micrographs were analyzed. Results: Means (s.d., n=8) of tensile bond strength (MPa) were compared using ANOVA. Failures modes were mixed. Fisher's PLSD (p=0.05) for adhesives and techniques were 4.8 and 5.9 MPa, respectively.

Adhesives	Healthy dentin	ADSE*	ADSS
SBP	38.7 (14.8) 46A/54C	15.7 (7.0) 75A/6C/19T	16.8 (6.3) 89A/11T
AP	24.6 (4.9) 55A/45C	26.0 (6.4) 94A/6C	27.6 (6.2) 75A/25T

*ADSE - affected dentin/Seek/excavator; ADSS - affected dentin/Seek/Smartprep. A: adhesive failure; C: cohesive on composite; T: cohesive on dentin

Conclusions: Adper Single Bond Plus had higher bond strength than Adper Prompt on healthy dentin. Adper Prompt had the highest bond strength on affected dentin with both caries removal techniques. There were no significant differences between both techniques for both adhesives systems. SEM micrographs of the dentinal surfaces on healthy dentin with SBP and AP show a thicker hybrid layer and longer resin tags than the other four groups of teeth with affected dentin. Funded by 3M ESPE.

Surface Texture Parameters and Gloss of Two Composites with Different Nanofiller Configurations. L.B. ROEDER*, H. LU and J.M. POWERS. (Houston Biomaterials Research Center, University of Texas Dental Branch at Houston, Houston, TX, USA)

The purpose of this study was to measure two surface texture parameters and gloss of two composites with different nanofiller configurations treated with sequential finishing with standardized grits. Two surface parameters were measured: average surface roughness (Ra), which is the arithmetic average value of the profile from the centerline throughout the sampling length, and root mean square slope (RΔq), which is a hybrid parameter that is dependent on both amplitude and spacing.

Two nanofiller composites were tested. The YT composite is a combination of non-agglomerated/nonaggregated, 75-nm silica nanofiller and a loosely bound agglomerated silica nanocluster, with the primary component being the nanoparticles (Filtek Supreme, Translucent Yellow, 3M ESPE). The A2 composite is a combination of a nonagglomerated/non-aggregated, 20-nm nanosilica filler and a loosely bound agglomerated zirconia/silica nanocluster, with the primary component being the nanocluster (Filtek Supreme, A2 Body Shade, 3M ESPE). Six specimens for each composite/grit combination were fabricated. The discs, 12 mm in diameter, 4-mm thick, were cured in a mold with a Mylar strip/glass slide for 40 seconds on each side. The specimens were randomly assigned to 6 groups that were finished with SiC paper using a grinder. The abrasive grits were 400, 600, 1000, 1200, 1500 and 2000. The specimens were finished for a specified length of time per grit at a speed of 120 rpm with force of 53 N. Surface parameters Ra (μm) and RΔq (μm) were measured with a surface profilometer set at a tracing length of 2 mm and a cutoff of 0.25 mm to maximize filtration for surface roughness. Five tracings per specimen at different locations on each disc were recorded. The gloss (GU) was measured with a gloss meter. Four readings per specimen were recorded.

Means with standard deviations in parentheses (n=6) are listed below. Fisher's PLSD intervals for comparison between composites and among grit sizes at the 0.05 level of significance were 0.01 and 0.01μm for Ra (average surface roughness), 0.15 and 0.27 μm for RΔq (root mean square slope), and 1 and 2 GU for gloss, respectively.

Abrasive	YT, Ra	YT, RΔq	YT, Gloss	A2, Ra	A2, RΔq	A2, Gloss
2000 grit	.018 (.002)	0.91 (0.16)	83 (1)	.019 (.001)	1.23 (0.12)	90 (1)
1500 grit	.022 (.002)	1.22 (0.34)	82 (1)	.029 (.007)	1.58 (0.19)	88 (2)
1200 grit	.026 (.001)	1.09 (0.16)	81 (1)	.033 (.005)	1.91 (0.34)	81 (1)
1000 grit	.029 (.002)	1.17 (0.09)	78 (2)	.060 (.014)	2.90 (0.15)	69 (1)
600 grit	.031 (.005)	1.24 (0.14)	78 (2)	.125 (.018)	4.80 (0.51)	37 (3)
400 grit	.210 (.031)	5.28 (0.69)	29 (5)	.303 (.018)	7.52 (0.40)	9 (1)

There was a significant difference between the surface roughness of YT and A2 except when finished with 2000 grit. There was a significant difference in $R_{\Delta q}$ values between the composites for all grit levels. There was a significant in the gloss between YT and A2 except for 1200 grit. YT finished to a smoother and glossier surface earlier in the sequential grit sequence. A2 achieved comparable gloss by 1200 grit, yielding significantly glossier surfaces at 1500 and 2000 grit. A2 achieved the same level of smoothness as YT at 2000 grit. Supported in part by 3M ESPE.