



Title	Evaluation of problem-solving skills: what we really do
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<p>1393 Compensated Bracket Height for Vertical Variation of the FA Points. M. FUJITA*, K. ARAI, and H. ISHIKAWA (Department of Orthodontics, Nippon Dental University, Tokyo, Japan)</p> <p>The purposes of this study were to evaluate the vertical variation of the Facial-axis point (FA point) and to develop bracket-positioning methods, which compensate for these variations during clinical application of the straight-wire appliance (SWA) and straight-wire technique. For this study, thirty subjects with ideal Class I occlusions were selected (15 males and 15 females, mean age of 23 years and 2 months) from a total population of 3,500 Nippon Dental University students and staff. A non-contact three-dimensional orthodontic cast laser scanning system developed by our research unit was used as a measuring tool. Mean values and S.D.s of the vertical relationships of the FA points were computed and evaluated. The data was analyzed using one-way ANOVA and Scheffe's method. The FA points of the upper first and second premolars, first molars, lower first and second molars were found to be located more occlusally than the FA points of the remaining teeth ($p < 0.01$). The Natural Andrews (NA) plane and NA points on each tooth were defined to compensate for this variation. The NA plane is formed by a plane, parallel to the occlusal plane, which passes through the average values of 14 FA points within the dental arch. The NA point is the point of intersection of the Facial axis and the NA plane. The compensated bracket height is defined as the vertical distance between cusp tip and the NA point. The bracket height ratio (%) is computed as (the compensated bracket height / clinical crown height) \times 100. In conclusion, these results may be useful in the following applications: (1) as a reference for wire bending, (2) during bracket design of the SWA, and (3) during vertical bracket positioning utilizing the straight-wire technique. Supported by a Grant for Scientific Research from the Ministry of Education, Japan (No. 07407061).</p>	<p>1394 Evaluation of Problem-Solving Skills: What We Really Do. L. JOHNSON* (University of Iowa), M. ALDRED* (University of Melbourne), C. SHULER* (University of Southern California), M. COMFORT* (University of Hong Kong), B. MCCARTAN* (Trinity College), R. BEDI* (Eastman Dental Institute).</p> <p>Many dental institutions have successfully implemented techniques for teaching problem-solving skills such as Problem-Based Learning (PBL). However, few institutions have taken the next critical step of a formal evaluation of the problem-solving skills taught using PBL. This workshop is aimed at dental educators and educational researchers who are interested in assessing the problem-solving skills of their students. The workshop will give a brief review of the evaluation of problem-solving skills literature, with an emphasis on evaluation techniques that are most appropriate in a PBL setting. The Educational Research Group will invite from its membership four individuals to give case study presentations from their institutions on techniques they have found to be successful. Each presenter will briefly describe the strategy that they have used to evaluate the problem-solving skills of their students, and the strengths and weaknesses of that technique. Additionally, each presenter will provide recommendations for others who want to implement that technique, or an adaptation of that technique, in their institution. The implementation issues that arise with each technique will be compared. Those attending will be encouraged to consider specific adaptations that relate directly to their institutions. Time will be allowed for group discussion. During this discussion the techniques will be compared and contrasted for effectiveness, cost of implementation, and faculty effort required for implementation.</p>
<p>1395 Tea and Oral Health. C.D. WU¹, S. KASHKET², Y. HARA³, P.D. MARSH⁴, and L. HWANG⁵ (¹Periodontics Dept., Univ. of Illinois at Chicago, Chicago, IL, ²Forsyth Dental Center, Boston, MA, ³Mitsui Norin Co., Japan, ⁴Center of Applied Microbiology Research, UK, ⁵Graduate Inst. Food Sci. Tech., National Taiwan Univ., Taiwan).</p> <p>Tea derived from <i>Camellia sinensis</i> is a traditional, popular and the most widely drunk beverage in the world. Research data has provided convincing evidence of its physiological and pharmacological effects including antimicrobial, antioxidative, hypocholesterolemic and anticancer activities. However, its oral benefits have not been well investigated systematically. Earlier studies suggested that tea consumption led to a reduction in dental caries in humans and experimental animals and that the tannins and fluoride in tea may have contributed to the unique anticariogenic effects. In recent years, evidence to support these anecdotal observations has been accumulating. In this symposium, a number of investigators will present general reviews of tea chemistry and current findings on tea and its oral health benefits. Additionally, some reports will summarize the use of tea extracts and constituents in currently available consumer products.</p> <p>Specific reports will address effects of tea and its components on oral microflora, plaque glycolysis and regrowth, salivary amylase and food digestion, and implications for oral malodor and general oral health. A discussion regarding the general mechanisms responsible for the biological effects of teas on oral health and disease prevention will also be presented. (Sponsored in part by Tea Council of Canada; Unilever Dental Research, UK; Optiva Corporation, Warner-Lambert Company, and Wm. Wrigley Jr. Company, USA).</p>	<p>1396 Application of New Concepts/Technologies to Clinical Research in Dentistry. J. Clarkson* (School of Dental Science, Trinity College, Dublin, Ireland)</p> <p>There has been an increased emphasis on clinical research in dentistry in recent years due in part to major advances in biomedical research and the need to apply these advances in a clinical setting. The aim of this symposium is to explore some of the concepts and techniques currently being used in the major areas of clinical dental research. Presenters will focus on: design issues for outcomes research; on new diagnostic techniques and their application in cariology; on clinical research in periodontics and in the field of oral medicine and finally on practical opportunities for clinical research on saliva. The symposium is part of an IADR Theme Session on clinical research, and is preceded by a keynote address on evidence based medicine and followed by relevant poster sessions. It is hoped that the theme session and symposium will stimulate further interest in clinical research in dentistry.</p>
<p>1397 Cementum and Periodontal Regeneration. Organizers: A.S. Narayanan and Moon-Il Cho. Dept. Pathology, University of Washington, Seattle 98195-7470, WA and SUNY School of Dental Medicine, Buffalo NY 14214.</p> <p>Restoration of periodontal connective tissue attachment to previously diseased tooth root surfaces requires the formation of new cementum. So far it has not been possible to regenerate new cementum on previously diseased roots in a predictable manner and very little is known about the factors that regulate cementum formation during tooth development in adults. During the past decade research on cementum has revealed the uniqueness of cementum in terms of its development, structural organization and presence of biologically active polypeptides. In this symposium we will review new developments in cementum research and the new knowledge in the context of emerging concepts in periodontal tissue healing, and their clinical application to restore the attachment of connective tissue fibers to previously diseased root surfaces. The symposium will begin with a discussion of the structural organization of components in the cementum, and the biological actions of growth factors and adhesion molecules present in the cementum will be reviewed. Cementogenesis in developing and adult teeth using rodent and human models will then be discussed, and factors regulating cementogenesis and models available to study cementum formation will be examined. This will be followed by a discussion of cementoblast precursor cells, how their recruitment and differentiation are regulated and what roles cementum components play in these processes. Finally, how these principles are relevant to periodontal regeneration will be reviewed and the symposium will end with a general discussion.</p> <p>Supported by NIH grants DE-08229, DE-10491 and DE-4898. The symposium is sponsored by BIORA AB, Sweden (BIORA Inc. USA).</p>	<p>1398 Caries Risk of Patients with Watched vs. Replaced Restorations. LUSTIG* JR, MARKER VA, DESPAIN BA, WOODS PW (Baylor College of Dentistry, a member of the Texas A&M University System, Dallas, TX).</p> <p>A group of restorations with no history was identified in a retrospective study. The treatment decisions for this group subdivided them into watched ($n=18$) and replaced ($n=16$). The life-span of the watched restoration (13.6 years) was significantly greater than the life-span of the replacement amalgam (5.5\pm5.5 years) (ANOVA and Scheffe's test, $p < 0.05$). To evaluate the clinical relevance of this finding, an assessment of the factors that influence the clinician's decision to monitor or replace a restoration must be determined. This study was designed to evaluate one factor, the caries risk of each patient to identify a possible reason for the different life-spans. Surveys were sent to the clinicians asking for information from patients' charts, including: 1) patient age; 2) no. of restored teeth, restored occlusal surfaces and no. of restored target teeth (max. and mand. anteriors); 3) medications or systemic illnesses; and 4) other factors that influence caries risk. Clinicians were asked to state their evaluation of the caries risk. A regression analysis comparing the caries risk estimates for these two groups showed no association indicating that the groups were different. This result was not as expected. In fact, 70% of the patients in the watched restoration group were classified as high risk, while only 17% of the replaced group were high caries risk. Correlations between the estimated caries risk from the chart information and the clinician's assessment were significant for the restored group ($p < 0.05$) and strong for the watched group ($p < 0.06$), suggesting that the estimate technique was representative of clinical judgments. The findings illustrate the complexity of the decision-making process since there seemed to be no correlation between low caries risk and the decision to watch.</p>
<p>1399 Preformed crowns - evidence for efficacy in primary molar teeth RC RANDALL*, MMA VRJHOEF, NHF WILSON (Laboratoires 3M Santé, France and University of Manchester, UK.)</p> <p>The aim of the study was to evaluate evidence for a treatment effect of preformed stainless steel crowns (PC) in primary molar teeth both by means of a literature review and by use of meta-analysis. From a literature search and retrieval of references from relevant papers, studies were selected that 1) evaluated treatment with PC against a conventional control restoration in primary molar teeth in children, and 2) provided data from which a 2 \times 2 table comparing successful and failed restorations could be completed. The summary odds-ratio (OR) and 95% confidence interval (CI) were calculated using the Mantel-Haenszel method (<i>J Natl Cancer Inst</i> 1959; 22: 719-748). Seventeen studies were retrieved of which ten fulfilled criteria 1) and 2). Most control teeth were restored with amalgam and all studies except one were retrospective. Study duration ranged from 1.6 years to 9 years. The success rate, based on subsequent treatment need and/or retention of the restoration at final evaluation ranged between 97% and 70% for PC (mean 85%) and between 88% and 11% for controls (mean 55%). Overall, PC demonstrated greater longevity and reduced retreatment need compared with control restorations. For the nine retrospective studies the summary OR_{mh} (0.28) and 95% CI_{mh} (0.26, 0.29), fell within the boundary favoring treatment with PC, as did the OR 0.07 and 95%CI (0.03), (0.14) for the single prospective study. In evaluating the populations studied, it was considered likely that the majority of larger cavities and higher risk teeth had been restored with PC leaving the control restorative materials to be placed in the less severely broken down teeth. Analysis of the literature retrieved for this study, even though mainly retrospective, demonstrated evidence of a more favorable treatment outcome for PC as against a control (usually amalgam) in primary molar teeth requiring multisurface restorations.</p>	<p>1400 Impact of Patient and Practice Variables on Re-restoration Decisions. M.A.D. PANAIT*, E.H. VERDONSCHOT*, A.J.M. PLASSCHAERT. (Department of Cariology and Endodontology, University of Nijmegen, The Netherlands).</p> <p>Given one and the same dental problem, large variations in treatment decisions by dentists have been reported. It was the objective of this study to assess the effect of some patient and practice variables on the decision to replace a restoration. A distinct case of a restored tooth was selected and presented to 112 randomly selected general dental practitioners. They were shown a picture of the restored tooth and were asked to decide whether or not the restoration required replacement. Next, a radiograph of the tooth was presented and again a treatment decision was taken. The questionnaire contained questions exposing the dentist to patient and practice factors upon which a treatment decision was taken. A multiple regression analysis was conducted using the dentist's treatment decision as a dependent variable and the patient and practice factors as independent variables. The results indicated that there was no significant difference between treatment decisions taken without and with a radiograph (paired t-test; $p > 0.05$). Multiple regression analysis revealed that four variables could explain most of the variance in the treatment decision ($p < 0.05$; R-squared=0.53). A treatment decision was revised when "a patient was difficult to treat without local anesthetic", "the oral hygiene was sufficient", "the patient experienced the treatment as unpleasant", and "the practice pressure was low". It was concluded that particularly patient factors, but also one practice variable could affect the decision to replace a restoration.</p>