

“Dental Myths & Controversies VIII” Continuing Education Course

The Tenth Annual PROH Conference was held on Friday, October 31, 2014 at the World Trade Center in Portland. Topics for “Dental Myths & Controversies VII” were selected by surveying PROH members. Six select faculty from OHSU identified the opposing viewpoints, presented a review of the relevant research and their position on the topic based on their understanding of the evidence, and answered questions. Below is a summary of the course.



“Restoration repair: Do those patches really work?” by Tom Hilton, D.M.D., M.S., Alumni Centennial Professor in Operative Dentistry and co-director of the PROH network.

Few clinical studies regarding the repair of restorations have been conducted. Repair is a viable alternative in some circumstances. Repaired amalgams and composites are weaker than cohesive strength of the material. Occlusal load must be taken into consideration. Amalgam repair preparations should have independent retention and resistance form. With the increasing use of composites, repair becomes more important. Composite is more conservative initially, but may not be over the long term. There is decreased longevity with composite vs. amalgam. It is challenging to maintain a conservative preparation while replacing an existing composite restoration. Repair vs. replacement is dependent on location, access and size.



“Implant platform switching – easy as taking the next train?” by Jim Katancik, D.D.S., Ph.D., Associate Professor and Chair, Department of Periodontology.

Platform switching is the restoration of an implant with an abutment having a smaller diameter than the implant platform. This results in repositioning the biologic width horizontally and confines the inflammatory cell infiltration away from the crestal bone. A minimum thickness of 3 mm of soft tissue is necessary to allow for a biologic seal between the oral cavity and bone. Crestal bone is always separated from the band of inflamed connective tissue by 1 mm of healthy connective tissue. The exposed horizontal surface of the implant platform allows for soft tissue attachment and the band of soft tissue seal horizontally as opposed to vertically. Evidence suggests that platform-switched abutments are superior to platform-matched abutments in retaining crestal bone levels around dental implants.



“Enhancing dentin bond durability: Is it really possible?” by Carmem Pfeifer, D.D.S., Ph.D., Assistant Professor in the Department of Restorative Dentistry.

Bond preservation protocols have been suggested over the years to improve the stability of the tooth-restoration interface in composite restorations. One of such protocols consists in applying a solution of chlorhexidine after acid etching the tooth surface, and a few commercial materials exist for that purpose.

Alternatively, naturally occurring collagen cross-linkers could be used to modify root dentin collagen to efficiently stabilize collagen and to increase its resistance against caries. Collagen cross-linking increases immediate bond strength, stabilizes the adhesive interface, and inhibits dentin matrix metalloproteinases (MMP), thereby increasing the durability of resin-dentin bonds. The use of MMP inhibitors does not affect immediate bond strength overall, but they do influence the aged bond strength.

Universal bonding agents have not been demonstrated to increase bond strengths compared to 2-step self-etching primer adhesives.



“It may be strong, but can I bond to it? Cementation and repair of zirconia.” by Scott Dyer, D.M.D., M.S., Ph.D., Adjunct Assistant Professor in the Department of Restorative Dentistry and private practitioner.

Zirconia-based ceramic is indicated in crowns and bridges when blocking out of darkened understructure is desired. Bonding requires 1) sandblasting with alumina particles to clean and roughen the surface and 2) a ceramic primer containing 10-methacryloyloxydecyl dihydrogen phosphate (MDP) to bond to metal oxides. Chipping and delamination of zirconia-based ceramics at the rate of 0.5-50% are reported at 5 years. Repair results are poor but can be improved by tribochemical treatment prior to the composite repair. Tribochemical is a method for silicating surfaces. It creates chemical bonds by applying mechanical energy (rubbing, grinding, or sandblasting with silica-modified aluminum oxide).



“You see what? Can I really interpret that from a panoramic radiograph? By Shawneen Gonzalez, D.D.S., M.S., Assistant Professor in the Department of Oral Pathology and Radiology.

Carotid artery calcifications detected on panoramic radiographs indicate an increased risk of adverse vascular events. When carotid stenosis is greater than 50%, it will be visible on panoramic radiographs 75% of the time. Intraoral bitewings remain the gold standard for detecting proximal caries. Imaging artifacts that can cause unwarranted concern of pathosis include tongue positioning (resulting in a black area over the maxillary dentition), angle burnout, and premolar burnout. Common anatomical variants are mastoid air cells in the glenoid fossa and an ossified stylohyoid ligament. The latter is not Eagle Syndrome if there is no pain when the patient turns their head to the left and right.



“And then you light cure – simple, right?” by **Jack Ferracane, Ph.D.**, Chair of the Department of Restorative Dentistry, Division Director of Biomaterials and Biomechanics, and co-director of the PROH Network.

A radiometer is needed to monitor the adequacy of output of curing lights. Exposure time of composites varies, even from the same manufacturer; read the directions! Probing the surface of a cured composite gives no indication of the extent of the cure at the bottom of the restoration. Composites will not “self-cure” with time. Most light guides do not demonstrate uniform output across the tip of the light, especially on polywave lights. Quality control is an issue with low cost curing lights. Orange glasses should be worn by clinicians to prevent retinal damage. Exposure reciprocity (ER) is a quality/property of a material generated by irradiation that is solely dependent upon the dose of the irradiation. ER holds under certain conditions, but cannot be universally applied. ER is more likely to hold in resins with higher viscosity, with filled resins, when there are multifunctional molecules, and when radiant exposure is adequate/reaching saturation. In general, the principle of ER is applicable; increasing curing time can compensate for lower intensity, but reducing time via lights with very high intensity is limited. Follow ER, but be cautious with lights with very high intensity.