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Soft Tissue Management **THE RESTORATIVE PERSPECTIVE**

Putting Concepts into Practice



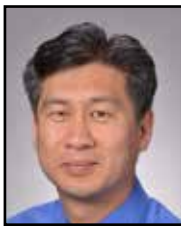
Contributors



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Sami Dogan, DDS, Dr med dent, received his dental degrees from the University of Ankara, Turkey, and from the School of Dentistry at the University of Hannover, Germany. He completed his postgraduate training in prosthodontics at the University of Washington. He is currently an assistant professor at the University of Washington in Seattle, where he teaches graduate and postgraduate students. Dr Dogan's research includes clinical and in vitro studies and focuses on remineralization of teeth and the quality assessment of dental materials. He has published extensively in peer-reviewed journals and holds an intramural practice limited to prosthodontics at the University of Washington.



Sul-Ki Hong, DDS, received his dental degree from the University of São Paulo, Brazil, where he then entered the postgraduate program in prosthodontics and taught both prosthodontics and periodontics. He received his certificate in periodontics in 2006 from Nova Southeastern University in Florida. Dr Hong became a Diplomate of the American Board of Periodontology in 2008. Currently, he is a full-time clinical assistant professor in the Department of Periodontics at the University of Washington. He also maintains a private practice limited to periodontics in Bellevue, Washington.



Motoaki Ishibe, DDS, MSD, received his DDS degree from Nihon University School of Dentistry in Tokyo, Japan, where he also completed a 1-year residency in general dentistry and served as a resident in oral and maxillofacial surgery. He further pursued his postgraduate training in prosthodontics at the University of Washington, where he received a certificate with an MSD degree. He is a certified prosthodontist and is currently an affiliate assistant professor in the Department of Restorative Dentistry at the University of Washington. He also maintains a private practice in Kofu, Yamanashi, Japan.



Jae Seon Kim, DDS, MSD, received his DDS degree from Yonsei University College of Dentistry in Seoul, Korea, and his MSD degree and certificate in prosthodontics from the University of Washington School of Dentistry. He is currently an assistant professor in the Oral Rehabilitation Department at Georgia Regents University College of Dental Medicine in Augusta, Georgia. He is also part of the esthetic team in the Ronald Goldstein Center for Esthetic and Implant Dentistry. Dr Kim is a Diplomate of the American Board of Prosthodontics and a Fellow of the American College of Prosthodontists.

Accurate Transfer of Soft Tissue Contours to the Dental Laboratory



Ariel J. Raigrodski | Motoaki Ishibe

As described in chapter 4, the primary goal of a master impression is to accurately capture the tooth preparation with the finish line as well as its position in the dental arch. When implant-supported restorations are to be fabricated, the master impression must capture the implant's tridimensional position in the arch. However, with both tooth-borne and implant-supported restorations, it is imperative to facilitate the dental technician's ability to fabricate restorations that integrate functionally and esthetically with the supporting tissues in a healthy manner. Once all needed surgical procedures (eg, implant placement, osseous crown lengthening, hard and soft tissue augmentation) have been completed and the supporting tissues have healed and matured, shaping and sculpting of the soft tissue is performed with the provisional restorations for crowns and fixed dental prosthesis (FDP) retainers,¹⁻⁵ ovate pontics,⁶⁻⁹ and implant-supported restorations¹⁰⁻¹³ as a prerequisite for achieving the desired integration with the supporting tissues.

In terms of soft tissue esthetics, studies have identified mean gingival zenith locations and levels as well as papillae heights in the anterior dentition. Such objective data may affect the design of the facial and interproximal topography of bone and soft tissue during surgical procedures, thus leading to the desired soft tissue contours and a matching cervical and interproximal design for the corresponding restorations. In one study, the location of the gingival zenith was assessed in a mediolateral position relative to the vertical tooth axis of the maxillary anterior teeth.¹⁴ Gingival zenith positions were measured from the vertical bisected mid-

line along the long axis of each individual maxillary anterior tooth. Mean values were 1.1 mm to the distal of the vertical bisected midline for maxillary central incisors, 0.4 mm to the distal for maxillary lateral incisors, and almost identical to the vertical bisected midline for maxillary canines. The gingival zenith levels of maxillary lateral incisors relative to the adjacent central incisors and canines were more coronal by approximately 1.0 mm. In another study, interdental papilla length measurements were made from the level of the gingival zenith to the coronal tip of the papilla.¹⁵ Mean values for maxillary anterior teeth were 4.0 mm for mesial papillae and 4.1 mm for distal papillae. The mean mesial papilla proportion (mesial papilla height ÷ crown length × 100%) was 42%, and the mean distal papilla proportion (distal papilla height ÷ crown length × 100%) was 43%, with no significant difference for the maxillary incisors. Canines demonstrated a trend toward increased distal papilla heights. Papillae proportions were approximately 40% for all tooth groups.

Several studies have evaluated gingival display in different areas of the dentition for different sets of populations. One study demonstrated visual display of interdental papillae during maximum smiling in 380 (91%) of 420 study participants.¹⁶ Note that 87% of the participants were diagnosed with a low gingival smile line. Another study evaluated soft tissue display during smiling in white people,¹⁷ while another looked at soft tissue display during smiling in a Chinese population.¹⁸ The first study assessed photographs of 66 participants and measured tooth, gingival, and