## COMMENTARY

## Color Effects of Gingiva on Cervical Regions of All-Ceramic Crowns<sup>1</sup>

## ALMA DOZIC, DDS, PhD\*

Color selection in dentistry means a translation of tooth color into a shade tab code in clinical circumstances. It depends on external factors (illumination source and surrounding colors) and internal factors (color perception ability, etc.). Perception of color differences ( $\Delta E$ ) during color selection and color evaluation in dentistry has been well established using spectrophotometer and standardized conditions.<sup>2</sup> However, the standardized conditions have not yet included the presence of gingival tissues, which is what is encountered in the clinical setting.

This paper addresses the potential for color effects of gingiva on such color evaluation.<sup>1</sup> The assumption that the interplay of reddish gingival color with the standard shade tabs can result in contrasting effects and assessment errors has finally gotten the necessary attention it deserves in this paper. Jin Wang and coauthors, lead by Dr. Ishikawa-Nagai have studied the color effect of gingiva on cervical regions of differently shaded all-ceramic crowns. They found a perceptible color differences ( $\Delta E$ ) in the cervical region between only tabs in standardized conditions and tabs surrounded by artificial gingiva in the same conditions. This finding means that the same individual can perceive different colors in the cervical region of porcelain crowns with and without the presence of gingiva. Apparently, it could be a new niche in research to define perceptibility thresholds in dentistry in the presence of gum tissue.

The natural color concept (NCC) of Shofu porcelain consists of shade tabs, developed from spectral teeth measurements and so-called "gummies," available in three colors, light, medium, and dark pink. These gummies are supposed to compensate for the contrast influences during shade selection.<sup>3</sup> However, although the scientific evidence to support the theory that color of gingiva can influence the shade perception is now available, the choice of particular gum shades has not yet been verified. Recently, Chen and coauthors investigated the effect of different gingival colors of the Shofu shade guide on spectrophotometric color measurement in a standardized model.<sup>4</sup> They found that there were significant differences among all gingival groups in cervical regions of tabs. This observation means that the type of gingiva would possibly have a perceptible influence on color selection in dentistry. Therefore, different types of gingiva also should be studied.

The continuous pioneering regarding color issues in dentistry and the founding of new collaborative groups of vibrant researchers worldwide to study color is the meter of excellence of Dr. Ishikawa-Nagai. Her research on the importance of gingival color will no doubt lead to the development of new products for better performance in dentistry when it comes to color determination and color reproduction.

## REFERENCES

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\*Assistant Professor (Guest), Department of Dental Materials, ACTA, Gustav Mahlerlaan 3004, 1081 LA Amsterdam, The Netherlands

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