COMMENTARY

SELECTING NANOTECHNOLOGY-BASED COMPOSITES USING COLORIMETRIC AND VISUAL ANALYSIS FOR THE RESTORATION OF ANTERIOR DENTITION: A CASE REPORT

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The use of a digital colorimeter to diagnose and select composite resin color is a unique use of technology in what is traditionally a trial-and-error restorative technique. Colorimeters are used extensively in the paint, printing, and textile industries, in which uniformity and reproducibility of color are important. Dental manufacturers also use colorimeters to produce consistent shades of dental porcelains and resins, whereas dentists and dental laboratory technicians primarily use colorimeters to match porcelain dental restorations to natural teeth or existing ceramic crowns.

Using colorimeters in clinical dentistry has proven to be more difficult than measuring the color of a paint chip or piece of cloth. Teeth are polychromatic, have complex geometric forms, and have varying degrees of translucency and opacity. To compensate for complex tooth shading, most colorimeters used in dental shade analysis include software that can display a detailed shade map of the measured tooth in commonly available shade-guide terminology. Although the use of the colorimeter is helpful and more objective than the human eye in determining shade, it is still difficult to describe or match exact tooth shade.

The author presents the clinical placement of a multicolor direct composite restoration on a single central incisor, in which shade was determined by both a visual analysis using a complex artistic rendering and an electronic digital colorimeter. The author chose to use the composite shades as indicated by the colorimeter analysis, and the final clinical restoration successfully blends with the existing natural teeth. The author effectively demonstrates, however, that the attractive restoration requires more than just an accurate shade match. The restoration of teeth still requires the artistic blend of shade, form, and surface texture. The author used the available technology to closely match color but also restored the single tooth to symmetry and characterization that matched the complex natural tooth.

This article reemphasizes that technology, although helpful, cannot replace the human artistic effort required to restore teeth to a natural appearance.

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