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Achieving the desired esthetic with current CAD-CAM ceramics

Farshad Dehnavi¹, Sareh Habibzadeh² and Negin Kouchak Dezfuli³¹Shahid Beheshti University of Medical Sciences, Iran²Tehran University of Dental School, International Campus, Iran³Islamic Azad Tehran University of Medical Sciences, Iran

The demand for tooth-colored restoration has grown considerably during the last decade. The restoration of anterior teeth is a difficult task, even for an experienced operator. Color is the most important determinant of esthetics. The esthetic appearance of a restoration should match the surrounding dental tissue. This requires that the optical properties of the restorative material be similar to that of the natural teeth. Thus, for an acceptable esthetic result, favorable shade matching of the all-ceramic restoration should be achieved by controlling absorption, reflection and transmission of dental ceramic material. Currently there are many different ceramic systems that can be used to achieve highly esthetic results. These include metal-ceramics with porcelain margins, In-Ceram, Hi-Ceram, IPS-Empress, Optec, and CAD/CAM ceramics. All ceramic systems have different composition, microstructure, crystalline content and phases. Direct transmittance, translucency, opacity and opalescence, all influence the optical properties of the ceramic restoration. Other factors include the thickness of ceramic, number of firing, glazing, powder/liquid ratio, surface texture and even the resin shade. This article focuses on controlling these variables to achieve the best possible esthetic result with an all ceramic system with the emphasis on CAD CAM systems.

farshad.dehnavi@gmail.com