

Abstract

PURPOSE. The objective of this study was to determine the effect of the color of a background substructure on the overall color of a zirconia-based all-ceramic crown. **MATERIALS AND METHODS.** Twenty one posterior zirconia crowns were made for twenty subjects. Seven premolar crowns and six molar crowns were cemented onto abutments with metal post and core in the first and second group. In the third group, eight molar crowns were cemented onto abutments with a prefabricated post and composite core build-up. The color measurements of all-ceramic crowns were made before try-in, before and after cementation. A repeated measure ANOVA was used for a statistical analysis of a color change of all-ceramic crowns at $\alpha = .05$. Twenty four zirconia specimens, with different core thicknesses (0.4-1 mm) were also prepared to obtain the contrast ratio of zirconia materials after veneering. **RESULTS.** L^* , a^* , and b^* values of all-ceramic crowns cemented either on a metal cast post and core or on a prefabricated post did not show significant changes ($P > .05$). However, the slight color changes of zirconia crowns were detected and represented by ΔE^*_{ab} values, ranging from 1.2 to 3.1. The contrast ratios of zirconia specimens were 0.92-0.95 after veneering. **CONCLUSION.** No significant differences were observed between the L^* , a^* , and b^* values of zirconia crowns cemented either on a metal cast post and core or a prefabricated post and composite core. However, the color of a background substructure could affect the overall color of posterior zirconia restorations with clinically recommended core thickness according to ΔE^*_{ab} values. [*J Adv Prosthodont* 2013;5:319-25]

KEY WORDS: Color; Dental Crown; Zirconia