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In vivo color stability of resin composite veneers and acrylic resin teeth in removable partial dentures

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Objective: The color stability of laboratory-made composite veneers was compared to that of artificial resin teeth under in vivo conditions. Method and materials: Veneers and resin teeth of removable partial dentures were measured colorimetrically with reflection spectrophotometry; the color changes were characterized in the Commission Internationale d'Eclairage L*a*b* color space. The color was first determined 24 hours after manufacture and again after 6, 12, and 18 months at incisal, cervical, and centrofacial tooth positions. The denture teeth and veneers were measured, cleaned to eliminate the influence of surface discoloration, and measured again at every recall. The food consumption and tooth cleaning habits of the patients were taken into account. Results: In all groups the maximum color changes from the baseline measurement were $\Delta L^* = 2.1$, $\Delta a^* = 0.4$, and $\Delta b^* = 1.8$. The changes in the ΔE^* values were between 1.0 and 2.5 units. Despite polishing, the ΔE^* values increased by approximately 0.2 to 0.3 units in relation to the previous measurement with increased wearing time. External discolorations were eliminated by polishing, depending on the type of material; the maximum color change because of polishing was between 0.8 and 2.0 units for ΔE^* . The resin teeth showed no significant changes in the ΔE^* values. Conclusion: After a wearing period of 18 months, the discolorations of the tested materials were clinically acceptable. The artificial resin teeth showed statistically smaller color changes than did the veneering materials