

Discoloration of restorative materials after bleaching application.

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OBJECTIVE: The esthetic application of bleaching materials has gained popularity, with consequences for teeth and restorative materials. The aim of this investigation was to evaluate the influence of different bleaching agents with varying peroxide concentrations on restorative materials. **METHOD AND MATERIALS:** The color behavior, Vickers hardness, and surface roughness were determined on different restorative materials and bovine enamel. Cylindric samples of two fine hybrid composites, one microfilled composite, one compomer, and one ormocer were bleached for two 2-hour periods with three commercial and three experimental bleaching agents with varying peroxide concentrations. The properties were determined before and after bleaching. As a control, all materials were investigated without bleaching after a 14-day storage. **RESULTS:** The restorative materials showed maximum changes in Vickers hardness of 44, maximum changes in surface roughness of between 0.2 and 0.7 microm, and a maximum discoloration of $\Delta E = 6.8$. A statistically significant deterioration of hardness, combined with the highest discoloration, was found for the microfilled composite and the compomer. Different bleaching systems showed varying effects on surface roughness. **CONCLUSION:** Bleaching resulted in a deterioration of the restorative materials, indicated by a decrease of hardness and an increase in surface roughness. Generally, bovine enamel showed significantly higher discoloration compared to the restorative materials.

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