COMMENTARY

EFFECT OF 10% CARBAMIDE PEROXIDE DENTAL BLEACHING ON MICROHARDNESS OF FILLED AND UNFILLED BASED SEALANT MATERIALS

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Studies have reported variable effects of dental bleaches on resin composites. The precise cause of these effects is unknown. The variable results probably relate to different composite compositions as well as to different testing methodologies.

Similarly, this study reports different effects on resin-based sealant microhardness after exposure to a daily 4-hour 10% carbamide peroxide bleach treatment for 4 weeks. There was a significant decrease in surface microhardness for two filled sealants and no significant change in surface microhardness for the unfilled sealant. The clinical significance of this finding is questionable because the decrease in surface microhardness for the two filled sealants was not large and because the final postbleach surface microhardness for the two filled sealants was still higher than that of the unfilled sealant. Furthermore, the surface of the sealant is not a primary target for bleach application and it is possible to minimize direct placement of bleach onto the sealant surface by restricting the bleach material to the anterior teeth and to the facial surfaces. However, the difference in bleach effect between the filled and unfilled sealants is interesting because this difference could shed some light on the reason for the controversial results reported for the effects of bleach treatment on resin composites. The variable effect of bleach on different resin composites could be related to their different filler loads or compositions. The matrix component of a resin, as this study suggests, may be unaffected or less affected by carbamide or hydrogen peroxide than the filler component. A closer look at the response to bleaching of the filler particles or of the bond between the filler particles and matrix may be warranted. Further studies would also be necessary to confirm that unfilled resin matrix is less susceptible to the effects of bleach treatment. If this is the case, then it may be possible to protect temporarily the surface of susceptible composites by applying a layer of unfilled resin adhesive to the composite surface prior to bleach treatment.

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