

# **Evaluation of the Effects of Mouthrinses on the Hardness of Esthetic Restorative Materials**

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## **Abstract**

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This study showed the relative effect of selected mouthrinses on the hardness of common esthetic restorative materials. Four common restorative materials were selected. They were Herculite XRV, Silux Plus, Photac-Fil and Hytac. The mouthrinses used were Listerine, Cepacol, Rembrandt, Oxygene Regular, Oxygene Professional Strength, and Breath Rx. These were tested against a mixture of 75% ethanol 25% water and deionized water. The results suggested that the Oxygene mouthrinses were the only non-alcohol mouthrinses safe for all composite resins.

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## **Summary**

Mouthrinses are used to control a variety of dental conditions including gingivitis, caries, xerostomia, and halitosis. Previous studies have shown that alcohol-containing products can affect selected physical properties of resin-based restorative materials. Surface hardness, diametral tensile strength and shear bond strength decrease after exposure to ethanol. A decrease in surface hardness can be expected to affect clinical properties of resin materials such as wear resistance. A decrease in wear resistance of any dental restorative material may result in premature failure of the restoration, thus requiring its replacement. Alcohol-free products have been developed to minimize the effects of rinsing on restorative materials. The effects of many alcohol-free rinses on resin-based restorative materials have not been reported. The purpose of this project was to evaluate the effect of several commercial mouthrinses (with and without alcohol) on the surface hardness of commercial esthetic resin-based restorative materials. Forty disc-shaped samples of each of four restorative materials (Herculite XRV, Silux Plus, Photac-Fil, and Hytac) were immersed in test rinses (Listerine, Cepacol, Rembrandt, Oxygene Regular, Oxygene Professional Strength, and Breath Rx) as well as controls (75% ethanol 25% water and deionized water) for 12 hours to simulate a one-year regimen of rinsing for two minutes per day. Samples were tested for Knoop hardness using a 500 gm mass.

## **Conclusion**

When considered as a group, the only rinses that did not appear to be significantly different from water (no effect on hardness) were Oxygene Regular, Oxygene Professional Strength and Cepacol (alcoholic).

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