COMMENTARY

SURFACE ROUGHNESS OF PACKABLE COMPOSITE RESINS POLISHED WITH VARIOUS SYSTEMS

Jack L. Ferracane, PhD*

The surface finish produced on composites is clinically significant in terms of the way in which it may affect the esthetics, periodontal health, and plaque accumulation around the restorative. As new types of composites are introduced to practice, it is important to assess the surface finish produced by the available polishing techniques. The purpose of this well-planned parametrically designed study was to compare the roughness of the surfaces produced on four packable and one microfill hybrid composite when finished and polished with four different systems.

The surface roughness of SureFil, Prodigy Condensable, Filtek P60, and ALERT packable composites was evaluated after the composites were finished and polished with Sof-Lex, Enhance, Composite points, and Jiffy points systems, all of which have abrasives of slightly different sizes. Filtek Z250 served as the microfill hybrid control. Surface roughness was measured on the initial matrix-cured surfaces and then on the finished surfaces using a surface contact profilometer. As expected, the results of this study showed that the surface smoothness varied depending upon composite and finishing systems used.

The general trend in this study was that ALERT had the greatest surface roughness of the composites evaluated. This observation was probably owing to the presence of glass fibers in the material, because the average filler size in the five resin composites was very similar and ranged between 0.6 and 0.8 μm. In addition, the smoothest surface finish was usually produced with the Sof-Lex disk system and the Jiffy points, and this is probably due to the small size of the abrasive used in the final step for these systems.

This study points out the difficulty in making general statements about the finishing and polishing of different brands of composites. The authors noted that although the Sof-Lex disks produced the smoothest surfaces on four of the five composites tested, the size and shape of the disks make finishing difficult. Since the Jiffy points were shown to be nearly as effective in producing a smooth surface on all of the composites, this system, based on a series of rubber cups, may be more universally practical for packable composites.

*Professor, Biomaterials and Biomechanics, Oregon Health and Science University, Portland, OR, USA