ADDENT

Advancing Dentistry

43 MIRY BROOK ROAD, DANBURY, CT 06810
CALL: 855-211-3413 VISIT: WWW.ADDENT.COM

ADVANTAGES OF WARMING COMPOSITE

The advantages of warming composite continues to be validated. To read the full text of the study below along with other research articles please visit our website, www.addent.com.

Effect of Temperature on Composite Polymerization Stress and Degree of Conversion

By Fernanda C. Calheiros, Marcia Daronch, Frederick A. Rueggeberg, Roberto R. Braga

Introduction: *"Increased polymerization temperature enhances radical and monomer mobility, resulting in higher conversion because of lowered system viscosity. From a clinical standpoint, pre-heating was shown to greatly increase composite flow. No pulpal damage is expected with pre-heating, as the difference in in vitro intrapulpal temperature was less than 1˚C when using composite pre-heated to 60˚C compared to composite tested at room temperature. However, little information is available on the effect of preheated composites on polymerization stress."*

Conclusion: *"Only when composite temperature was raised to 60˚C was a significant stress relaxation noted. Using a 5 s exposure (only ¼ of the manufacturer's recommended duration) on composite pre-heated to 40˚C or 60˚C resulted in a 47–55% reduction in final stress compared to using a full 20 s exposure with the composite maintained at room temperature. This finding is of major importance, as degree of conversion obtained isothermally 40˚C or 60˚C with a 5 s exposure was similar or even higher than 20 s at room temperature."*

Clinical Significance: *"Increasing composite temperature allows for reduced exposure duration and lower polymerization stress (both maximum and final) while maintaining or increasing degree of conversion."*