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**Title:** Effect of pre-warming and/or delayed irradiation on resin-modified glass-ionomer bond strength to tooth structures

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**Abstract:** Introduction: According to recent studies, the acid-base reaction and light polymerization in resin-modified glass ionomer (RMGI) compete with and inhibit one another. In addition, extrinsic energy would improve some properties of RMGI. This invitro study was evaluated the effect of pre-warming and/or delay irradiation on bond strength of RMGI to tooth structure.

**Methods and Materials:** Ninety-six flat enamel and dentin surfaces of human molars were ground up with sequentially finer abrasives to 600-grit silicon carbide paper. Each surface was treated with Cavity Conditioner for 10 Seconds, rinsed, and gently air-dried. (n=12) The RMGI (Fuji II LC I: improved version) was applied to the tooth substrates according to the following protocols:

- **Group 1:** according to the manufacturers’ instructions;
- **Group 2:** two minutes delay in light irradiation;
- **Group 3:** pre-warming of encapsulated material (90sec, 40°C); Group 4: pre-warming plus 2min delay in light activation.

After 24h storage in 37°C and 500 rounds of thermocycling, the samples were tested for shear bond strength and analyzed using of two-way ANOVA and Tukey HSD test. (p =0.05)

**Results:** The highest bond strength was related to group 2 in enamel groups; there were significant differences between four groups. Significant differences were observed between dentinal groups. The highest bond strength was related to group 1.

**Conclusion:** Within the limitations of the present study, standard procedure recommended by the manufacturer is the best procedure for RMGI bonding to dentin. Delaying in light irradiation might improve bond strength of RMGI to enamel, needs more investigations.

**resin-modified glass ionomer; bond strength; enamel; dentin; pre-warming; delay irradiation**

**Presentation:** Poster