

Streptococcal adhesion to various luting systems and the role of mixing errors.

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Objective. This study aims at ranking various luting systems according to their susceptibility to adhering *Streptococcus mutans* and at evaluating the influence of incongruent mixing ratios on adhesion quantities. **Material and Methods.** Circular specimens measuring 8 mm in diameter were made of nine widely used dental cements—three of them mixed in different ratios—and then incubated with *S. mutans*. Adhering streptococci were quantified using a biofluorometric assay in combination with an automated plate reader for cell quantification. Surface roughness (R(a)) was determined by perthometer measurements. **Results.** Meron plus revealed the highest R(a) (0.90 microm) and glass the lowest R(a) (<0.01 microm). In regular cement mixtures, the highest mean fluorescence intensities indicated the presence of many viable bacteria [Meron Plus (35,533 relative fluorescence units (rfu)), Maxcem (13,374 rfu), and Panavia F 2.0 (11,701 rfu)]. Moderate fluorescence intensities were found in Harvard (4,171 rfu), Ketac cem (3,766 rfu), Durelon (3,276 rfu), Calibra (3,259), Rely X Unicem (4,358 rfu), and Bifix SE (3,102 rfu). A medium correlation between R(a) and *S. mutans* adhesion was found. Changes in regular cement proportions (powder/liquid and base/catalyst, respectively) had a significant influence on relative fluorescence intensities, which linearly increased with a higher proportion of liquid in Harvard and with a higher proportion of catalyst in Calibra and Maxcem. **Conclusions.** Various luting systems revealed considerable differences in their potential to adhere *S. mutans*. Variations from recommended cement proportions led to significant changes in the amount of adhering streptococci.

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