OBJECTIVES: The objective of this experiment was to evaluate color and gloss changes of three different types of composite resins after staining and whitening.

METHODS: Fifty-seven disc-shaped composite samples were made for each of three composite resin materials (Activa, Filtek, and TPH Spectra), producing 19 samples per composite. Each group of samples was divided among four solutions: red wine, coffee, tea, and water (control), producing eighteen per staining group and three controls. Samples were stained the equivalent of 40 days for 3 hours at room temperature. When not undergoing staining/whitening, samples were stored in DI water at 37°C. Measurements were obtained for color and gloss before staining, after staining, and after whitening. Illuminant source specular component excluded (SCE) and included (SCI), with both CIE L'a'b* and CIE 2000 L"C"h" systems, were obtained with colormetric measurements. The standard \( \Delta E \) (total color change)\(=3.3 \) was used as a clinically-acceptable value. Stained groups were divided into two groups (\(n=9\)) for each whitening product: Opalescence Boost and Opalescence PF. Both were applied according to manufacturer's instructions.

RESULTS: Staining of all samples consistently showed decreased lightness. While Filtek showed the most colormetric changes, especially with wine. TPH and Activa composites showed few changes, most with tea. Whitening altogether showed increased lightness. All Activa specimens returned to clinically-acceptable levels, but the other two types varied. Gloss was most affected with TPH, followed by Filtek; gloss improved with Activa groups.

CONCLUSIONS: Overall, Filtek's color varied most, while Activa and TPH varied much less. All Activa groups returned to clinically-acceptable values. However, multiple TPH and Filtek groups had \( \Delta E>3.3 \). Furthermore, TPH experienced most gloss changes. In conclusion, Activa composites appeared most stable following experimental treatment.