

## عنوان مقاله:

Comparison of Wear Resistance Between Innovative Composites and Nano- and Microfilled Composite Resins

## محل انتشار:

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## خلاصه مقاله:

Background: One of the most common causes of failure in class ۲ posterior composite restorations is occlusal and proximal wear. Estelite composites used supra-nano monodispersing spherical fillers and a new photoinitiator, and the manufacturer claimed that the wear of these composites is less than ۱ mm<sup>۳</sup> volumetric wear. Objectives: Compare the wear resistance of new Estelite composites with that of other composites generations. Materials and Methods: Thirty-five specimens were evaluated in five groups: three kinds of Estelite composites (Estelite Sigma Quick, Estelite Flow Quick, and Estelite Flow Quick High Flow), Filtek Z۳۵۰, and Filtek Z۲۵۰. All specimens were prepared in ۲۵ mm disks and cured with laboratory light for ۱۲۰ seconds (۶۰ s for each side). Then, they were polished by ۶۰۰ grit sand paper and stored for one week in distilled water at room temperature. We used a two-body abrasion test and the pin-on-disk method with distilled water as medium. All specimens were worn under ۱۵ N load, ۰.۰۵ m/seconds speed, ۱۰۰ m distance, and steatite ceramic balls antagonists. After wearing, we measured wear volume by calculating the wear track cross-section area with a profilometer and analyzed the data with the one-way analysis of variance (ANOVA) test. Results: The wear amounts of the composites are as follows in order: Estelite sigma quick ( $1186.9 \pm 518.5 \mu\text{m}^2$ ), Estelite flow quick ( $2708.9 \pm 578.1 \mu\text{m}^2$ ), Estelite high flow ( $3206 \pm 2445.1 \mu\text{m}^2$ ), Filtek Z۳۵۰ ( $3840 \pm 1963.4 \mu\text{m}^2$ ), and Filtek Z۲۵۰ ( $4667.2 \pm 2351.1 \mu\text{m}^2$ ). No statistical difference was found among the groups ( $P \text{ value} > 0.05$ ). Conclusions: Estelite sigma quick composite had wear resistance similar to that of nano- and microfilled composites. Estelite flowable composites demonstrated similar wear resistance to that of a posterior composite

## کلمات کلیدی:

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