

Dental resin materials in vivo - TEM results after one year: a pilot study.

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Dental resins deteriorate clinically due to chewing forces, temperature changes, chemical agents or biological attack. Findings concerning these influences on the different components of a resin are limited. The aim of this study was to evaluate an alternative method for assessing the influence of the oral cavity on dental materials and their individual components as well as analyzing degradation effects over time. Seven dental composite and resin materials were inserted into the upper complete dentures of two subjects and evaluated after one year with a transmission electron microscope. The various resin components showed different degrees of deterioration. Composites with an urethandimethacrylate matrix were less vulnerable. A layer of salivary proteins (pellicle) was found on all materials but the polymethylmethacrylate reference. An accumulation of pellicle on filler particles and the crevice between filler and matrix was noted. We conclude that the tested method is effective for evaluating the interaction between the material's components and the biological environment. Further studies are needed to confirm these observations.

PMID: 16932864 [PubMed - indexed for MEDLINE]