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In vitro wear of composite veneering materials

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Résumé / Abstract

Wear resistance of restorative composites is important for clinical longevity and aesthetics, especially in posterior areas. In vitro examinations may contribute to improvements in the durability of composites depending on a thorough understanding of the wear behaviour. Artificial wear was performed on four labour fabricated veneering composites in a two-body masticator with all-ceramic antagonists and a three-body wear testing device using two kinds of food bolus. After ageing the wear track was determined in comparison to the unworn surface with a profilometer. Wear was correlated with the total filler amount and universal hardness. After millet three-body ageing all composites showed material loss between 2 and 3.5 μm , after millet sheet/rice of about 50-130 μm . The resulting wear track after mastication was about 180-300 μm deep. The composites showed different wear behaviour according to the used wear method. Between the different wear mechanisms and hardness or filler content no clear correlation could be determined. The wear performance of composites is a complex phenomena, with various in vitro tests different wear results could be obtained. Contrary to the general opinion, hard or highly filled composites must not necessarily show highest wear resistance.

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