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Wear performance of zirconia ceramics: Advantages and future possibilities

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The knowledge of wear resistance of dental ceramics after grinding and polishing treatment has significant importance in giving an insight towards their mean clinical working-life and performance. Extensive research has been conducted to determine how surface modifications (viz. grinding and polishing) and veneering affect wear resistance. In this respect, Zirconia has been the most common ceramic studied in great detail through polished, glazed, polished/sandblasted and re-glazed models. Using steatite or human enamel as antagonists, variable parameters of force, cycle number and methodology (chewing simulators, Alabama wear testing device etc) have continued to show no measureable surface loss found with respect to zirconia, whereas highest wear by veneered ceramics. Moreover, glazed zirconia showed more wear than polished zirconia.

This report is a literature review bringing forth the benchmarks set by previously conducted wear resistance studies on ceramics, highlighting the motivation behind zirconia's prominence for its minimum self and antagonistic wear, along with esthetic and high strength restorations. It also focuses on the need to conduct simulations on other dental ceramics in order to successfully comment upon their wear performance after surface treatments.

Biography

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