Lithium Disilicate (E-max) Versus Zirconia Crowns: A Comprehensive Review for Contemporary Prosthodontics

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Abstract

Statement of problem: The increasing preference for metal-free restorations has led to extensive use of lithium disilicate (E-max) and zirconia crowns in prosthodontic practice. Despite their popularity, differences in mechanical behavior, esthetics, and clinical indications require careful evaluation.

Purpose: This review aims to provide a detailed comparison of lithium disilicate and zirconia crowns with respect to material science, mechanical properties, esthetic outcomes, clinical performance, survival rates, cementation protocols, and indications.

Material and methods: A comprehensive narrative review of prosthodontic literature including systematic reviews, randomized clinical trials, retrospective studies, and in-vitro investigations was performed.

Results: Lithium disilicate crowns demonstrated superior translucency and esthetic outcomes, while zirconia crowns showed significantly higher fracture resistance and reliability under occlusal load. Both materials exhibited high survival rates when used according to evidence-based indications.

Conclusions and clinical implications: Both E-max and zirconia crowns are predictable restorative options. Material selection should be based on functional demands, esthetic expectations, and patient-specific factors to ensure long-term success.

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