

## Can Zirconia Wings of Resin Retained Cantilever Bridges Be Effectively Bonded To Tooth Tissue When Compared With Metal Wings In The Anterior Dentition in vivo? - A Systematic Review.

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**Abstract :** Materials & Methods: A systematic literature search was undertaken using pre-determined inclusion and exclusion criteria. This review followed the Preferred Reporting Items for Systemic Reviews and Meta-Analysis (PRISMA) statement. Several databases were used to search for randomised control trials and longitudinal cohort studies, which were published less than thirty years ago. A total of 54 studies met the predefined inclusion criteria. Four studies reviewed the success, survival, and failure characteristics of zirconia framework resin retained bridges, whilst two reviewed non-precious metal resin retained bridges. Results: The analysis of the studies revealed an overall survival rate of 95.9% for zirconia-based restorations compared to 90.7% for non-precious metal frameworks. Non-precious metal resin retained bridges displayed a higher overall failure rate of 11.9% compared to 4.6% for zirconia-based restorations in the analysed papers. The most frequent complications were wing debonding for the non-precious metal wing group, whereas substructure fracture and veneering ceramic fracture were more prevalent for the zirconia arm of the study. Conclusion: Both types of resin retained bridges provide effective medium to long-term survival. Zirconia-based frameworks will provide marginally increased success and survival and greatly improved aesthetics. However, catastrophic failure is more likely with zirconia-based restorations. Non-precious metal is time tested but performs worse than its zirconia counterpart with regards to longevity; it does not exhibit the same framework fractures as zirconia. Cement choice and attention to the adhesive bonding systems used appear to be paramount to restoration longevity with both restoration subtypes. Furthermore, improved longevity can be seen when air particle abrasion is incorporated into the adhesive protocol. Within the limitations of this study, it has been determined that zirconia-based resin retained bridges can be effectively used in anterior cantilever bridges. Clinical Significance: Zirconia-based resin retained bridges have been demonstrating promising results in terms of improved success and survival characteristics, together with improved aesthetics when compared to non-precious metal winged resin retained bridges. Their popularity is increasing in the age of digital dentistry as many restorations are manufactured using such technology. It is essential that clinicians understand the limitations of each material type and principles of adhesion to ensure restoration longevity.

**Keywords :** resin retained bridge, fixed partial denture, zirconia bridge, adhesive bridge

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