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## Mechanical properties of dental restorative composite materials: a review

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Dental professions believe in the dental resin-based composite it is increasing with the demand for aesthetic, tooth-colored, and mercury-free restorations for anterior and posterior teeth. This article aims to review the effect on properties of different resin fillers and matrix currently available. The review article includes the various properties of dental resin composite like mechanical strength, thermal properties, physical, chemical, and tribological properties. RBC restorative materials have several advantages over dental amalgam including improved aesthetics. The major objectives of the study are to develop dental composites based on novel inorganic-organic hybrid resins to: (1) reduce polymerization shrinkage (2) provide bioactivity (3) induce radiopacity and (4) biocompatibility. To accomplish these goals, a comprehensive knowledge of contemporary evolution in this field is required. This chapter on literature survey elaborates the history of dental composites; various resin matrices used and varied approaches for the modification of the resin matrix. The significance of inducing radiopacity and bioactivity in dental composites are also discussed. The influence of interaction between the resin matrix and filler on mechanical properties and cytocompatibility are reviewed in detail. A review of published literature made it possible to conceptualize experimental design strategies for the present study. This review article concludes that the nanosized of fillers particle increases the mechanical and tribological properties of dental resin materials. The hybrid composite also plays a significant role in the enhancement of the overall properties of DRC's. a silane treated filler also improve the dental bonding strength. the incremental layering technique is a better suggestion to reduce overall polymerization shrinkage stresses and complete polymerization of RBC restorations otherwise uncured or partially cured composite resin between layers or base may lead to poor strength or prevent adequate sealing of the restoration, cause post-operative sensitivity and early failure of the restoration.

## **Biography**

Sonu Saini have experience more than 10 years of teaching in mechanical engineering, he has interest in dental restorative composites. His interests include Finite Element Analysis, Finite, Element Modeling, Mechanical Properties, FE Analysis, Stress Analysis.

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