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Biomimetic Materials in Restorative and Prosthetic Dentistry

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ABSTRACT

Biomimetic dentistry is the fastest emerging trend in the new era of modern dentistry. Through multiple innovations and developments of materials it has been possible to biomimic the natural tooth structure in terms of biology, aesthetics and function. This narrative review aims to provide an insight into how to restore damaged dental structure by means of minimally invasive biomimetic approaches and restorative protocols. The stepwise procedure involving stress reducing and bond maximizing protocols helps in restoring biomechanics of natural tooth structure by reconnecting all parts of the tooth with all parts of the restoration. It gives the teeth lifelike appearance, increases longevity of restoration and decreases need for future intervention. Most commonly used biomimetic materials used in restorative and prosthodontic dentistry like Glass ionomer cements, composite resin, ceramics, polyetheretherketone (PEEK), their advantages, disadvantages and recent developments are reviewed. Biomimetic agents in relation to dental implants are discussed as it is an indivisible integral of prosthetic dentistry. Biological functionalization of implant surface with biomolecules promotes biologically successful functional integration of dental implants with surrounding tissues. Further research and development to produce more durable and biocompatible materials using advanced technologies has a promising future in the field of prosthodontics.

KEY WORDS

Biomimetic approach, restorative materials, dental implants, prosthodontics

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