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MATERIALS USED IN PROSTHETIC (ORTHOPEDIC) DENTISTRY

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Abstract

Background. Prosthetic dentistry relies on a wide range of materials designed to restore function, aesthetics, and structural integrity of the dentition. The selection of appropriate materials is a critical factor determining the success and longevity of prosthetic restorations.

Objective. To review the principal materials used in prosthetic dentistry and evaluate their clinical significance, physical properties, and practical applications.

Materials and Methods. A literature-based analytical review was conducted, focusing on contemporary dental materials utilized in prosthetic dentistry.

Results. Modern prosthetic dentistry utilizes diverse material groups, including metals and alloys, ceramics, polymers, composites, impression materials, and luting agents.

Conclusion. The continuous development of dental materials has significantly improved prosthetic treatment outcomes.

Keywords: Prosthetic dentistry, dental materials, ceramics, alloys, polymers, composites.

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Introduction

Prosthetic dentistry is a specialized branch of dental science dedicated to the restoration of missing teeth and oral structures. Advances in material science have profoundly influenced modern prosthodontics, enabling the fabrication of restorations that closely mimic natural dentition in both function and appearance.

Materials Used in Prosthetic Dentistry

Dental materials used in prosthetic dentistry can be broadly classified into several categories.

Metals and Alloys. Metallic materials remain indispensable due to their superior strength, rigidity, and durability. Noble alloys demonstrate excellent corrosion resistance and biocompatibility, while base metal alloys provide cost-effective alternatives.

Ceramic Materials. Ceramic materials are widely used for their outstanding aesthetic properties and chemical stability. Modern ceramic systems combine high strength with optical characteristics similar to natural enamel.

Polymeric Materials. Polymeric materials are primarily used in removable prosthodontics. Acrylic resins continue to be the standard for denture bases.

Composite Materials. Composite materials consist of an organic matrix reinforced with inorganic fillers.

Impression Materials. Impression materials are critical for ensuring the accuracy of prosthetic restorations.

Luting Materials. Luting agents play a fundamental role in the fixation of prosthetic restorations.

Conclusion

The evolution of dental materials has significantly enhanced the quality, longevity, and aesthetics of prosthetic restorations. Proper material selection remains a cornerstone of successful prosthetic treatment.



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