

PROSTHODONTICS IN GERIATRICS

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Abstract

As global life expectancy increases, the geriatric population continues to grow, requiring greater attention to specialized healthcare, including dentistry. Prosthodontics in geriatrics is uniquely challenging due to the physiological, psychological, and pathological changes associated with aging. These changes impact the oral cavity and the patient's capacity to undergo and adapt to prosthodontic treatment. This review highlights the clinical considerations, classification, treatment planning, and available prosthetic options for elderly patients. Emphasis is placed on tailored treatment strategies and the importance of patient-centered care to improve function, aesthetics, and quality of life in the aging population.

KEYWORDS: Geriatric dentistry, Prosthodontic rehabilitation, Complete dentures, Overdentures, Dental implants

INTRODUCTION

Prosthodontics in geriatrics requires an understanding of the aging process and how it affects oral structures and overall health. With improvements in medicine, nutrition, and hygiene, life expectancy has significantly increased, leading to a growing population of elderly individuals requiring complex dental care. These individuals present unique challenges such as systemic diseases, polypharmacy, physical limitations, and psychological changes that influence dental treatment planning and outcomes¹.

The physiological effects of aging impact the oral cavity in numerous ways. Common findings include tooth loss, resorption of the alveolar ridges, decreased salivary flow, compromised neuromuscular control, and diminished oral mucosal resilience. These factors, combined with age-related changes in bone density and sensory perception, make prosthodontic treatment particularly complex².

Clinical Considerations in Geriatric Prosthodontics

The elderly population is heterogeneous and should not be treated as a uniform group. Patients may be functionally independent, frail, or functionally dependent. Functionally independent individuals can undergo standard prosthodontic procedures similar to younger adults, whereas frail and dependent patients require tailored, often simplified approaches. Psychological classifications also play a role—realistic patients are cooperative and motivated, while others may be indifferent or even resistant to treatment^{3,4}.

Physiological changes associated with aging include reduced muscle tone, diminished vision and hearing, reduced taste perception, and cognitive decline. These impact the patient's ability to understand instructions and adapt to new prostheses. Soft tissues become thinner and less elastic, making them more prone to trauma from dentures. Reduced salivary flow, often a side effect of medications, leads to xerostomia, increasing the risk of denture discomfort, mucosal infections, and compromised retention^{5,6}.

Tooth wear from attrition, erosion, and abrasion is common and often results in a loss of vertical dimension of occlusion, affecting both function and esthetics. Secondary dentin formation and pulp calcification reduce tooth sensitivity, complicating restorative procedures. Periodontal tissues in elderly patients may exhibit recession and attachment loss, yet age alone does not determine prognosis; oral hygiene capacity and caregiver support are equally important⁷.

Prosthodontic Treatment Options

Removable partial dentures (RPDs) are widely used in geriatric patients due to their affordability and ease of use. These should be designed to minimize tissue stress and allow easy insertion and removal. RPDs must be carefully adjusted to avoid overloading the abutment teeth, and caregivers should be involved in hygiene maintenance when patients cannot manage independently.

Complete dentures remain a primary option for edentulous elderly patients. However, due to alveolar bone resorption and soft tissue changes, achieving stability and retention is often challenging. Proper impression techniques, functional border molding, and accurate vertical dimension recording are essential for success. Non-anatomic posterior teeth are frequently chosen in such cases for better adaptation and to reduce lateral stress on compromised ridges⁸.

Overdentures, supported by retained roots or implants, provide several benefits. They help preserve alveolar bone, enhance stability and retention, and maintain proprioception. They are ideal for patients with a few remaining teeth in strategic positions. However, they require good oral hygiene and maintenance to prevent caries or periodontal disease around abutments. In patients with limited hygiene capability, simplified overdentures without attachments may be preferred⁹.

Implant-supported prostheses are increasingly used in elderly patients. Age is not a contraindication; the decision depends on systemic health, bone quality, and the ability to maintain hygiene. Two-implant mandibular overdentures have shown excellent outcomes in terms of retention and patient satisfaction. However, implant therapy involves surgical intervention, cost, and maintenance, which must be discussed thoroughly with the patient and caregivers¹⁰.

Fixed prostheses such as crowns and bridges provide functional and esthetic advantages. However, they demand a high level of oral hygiene and regular follow-up. In many elderly patients, extensive fixed reconstructions may be impractical. Instead, segmented treatment with fewer units can minimize the consequences of potential failures. Resin-bonded bridges may serve as conservative alternatives in low-stress anterior areas, while full crowns are indicated for heavily restored or endodontically treated teeth¹¹.

Treatment Planning and Management

Geriatric treatment planning must begin with a comprehensive medical and dental history, including systemic illnesses, medication use, cognitive status, and socio-economic factors. Many elderly patients take multiple medications that may affect healing, salivary flow, and treatment outcomes. A careful intraoral examination, radiographic analysis, and mounted diagnostic casts are critical in formulating a personalized plan¹².

The treatment approach should be conservative and staged. Initial management may include tissue conditioning, relining of old dentures, or fabrication of transitional prostheses. Once adaptation is achieved, more definitive prostheses can be considered. Where possible, prostheses should be designed with future modifications in mind, such as the addition of teeth or conversion to overdenture configurations.

Communication with elderly patients must be clear and supportive. Many suffer from hearing loss or cognitive impairment, so instructions should be repeated clearly, possibly with the aid of written material or caregiver involvement. Building rapport and setting realistic expectations are vital to avoid dissatisfaction. Dentists should explain limitations based on age-related anatomical changes and the likely need for adjustment periods¹³⁻¹⁵.

The dental clinic environment should also accommodate the physical limitations of elderly patients. Chairs should be supportive, entryways accessible, and appointment times aligned with the patient's routine. Appointments should be kept short, with the patient's comfort and endurance in mind. Positioning in the dental chair must consider comorbidities such as arthritis, cardiac conditions, or respiratory compromise¹⁶.

Aesthetic concerns are important even in older patients. Tooth selection must account for age-related changes such as darker shades, decreased translucency, and altered wear patterns. Patients often prefer prostheses that look natural for their age rather than overly bright or uniform. Proper anterior tooth selection and arrangement can significantly improve patient satisfaction and self-image^{17,18}.

CONCLUSION

Prosthodontic care for the elderly demands a comprehensive, individualized approach. The practitioner must assess medical, functional, and psychological factors and tailor the treatment to meet the patient's needs, desires, and capabilities. Although aging presents unique challenges—such as tissue atrophy, systemic disease, and oral hygiene limitations—modern prosthodontic solutions, including overdentures, implant-retained prostheses, and well-designed RPDs, allow for effective rehabilitation. Above all, empathy, patience, and a focus on enhancing quality of life are central to successful outcomes in geriatric prosthodontics.

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