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Prosthodontics for the elderly: Essentials and considerations

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Abstract
The increasing global life expectancy has resulted in a rapidly growing geriatric population, intensifying the need for specialized dental care. This review explores the essential aspects of prosthodontic management in elderly patients, emphasizing the physiological, psychological, and social complexities that influence treatment. Age-related changes such as tooth loss, diminished bone quality, cognitive decline, systemic diseases, and reduced adaptability present significant challenges in prosthodontic rehabilitation. Classifications of aging and mental states aid in tailoring care to individual needs. The review addresses the senile changes in the masticatory apparatus, the role of geropsychology, and the intricacies of prosthodontic options like removable, fixed, and implant-supported prostheses. Additionally, it outlines medication considerations, psychological evaluations, and the holistic responsibilities of prosthodontists. By integrating technical precision with compassion and multidisciplinary collaboration, dental professionals can significantly improve oral function, nutrition, and overall quality of life in the elderly population.

Keywords: Geriatric dentistry, prosthodontic management, elderly patients

Introduction
Life expectancy went up a lot in the 20th century, mostly because of improvements in medicine, science, education, and technology [1]. The number of elderly patients who eventually become partially or fully edenutulous is increasing along with the geriatric population. The elderly population is a high-risk group for oral health issues because to their decreased physical dexterity, declining cognitive function, and unmet treatment needs, which may be exacerbated by mental health conditions. A dentist once said *"Life begins at forty"*, he would have had trouble defending his findings. Since the subtle, progressive conditions that become so important in later years manifest at this age, it has proven practical to presume that the geriatric approach to dentistry becomes applicable at 40. Important illnesses actually start far earlier than their clinically discernible signs and symptoms [2].

Geriatric patients require a comprehensive approach to prosthodontic management that takes into account their unique medical, psychological, and social demands.

Successful outcomes require comprehensive evaluation and individualized treatment strategies since elderly people frequently have complex health issues [3]. Traditional prosthodontic procedures may become more difficult for elderly individuals because of issues like tooth loss, decreased bone density, xerostomia, and systemic disorders. Physical and mental decline are commonly linked to aging [4]. Many elderly people experience emotional difficulties as a result of these psychological changes, deteriorating physical health, and the accumulation of life changes. Age-related behavioural changes might result from social or physiological adaptations [5]. Ten to twenty percent have anxiety disorders, especially phobias in women over sixty-five, and fifteen to twenty percent have depressive symptoms. Over 40% of those 85 and older have dementia, a prevalence that increases with age. Alzheimer's disease, a type of dementia that cannot be cured, is characterized by cognitive decline, personality abnormalities, and memory loss. Elderly people are also affected by delirium and schizophrenia [6]. This review offers an overview of the essentials and considerations involved in prosthodontic management for geriatric patients.

Classification

Rowe and khan classified aging into

1. **Successful aging:** Persons appear younger and more vigorous then their stated age.
2. **Usual aging:** Person without clinical disease show physiologic changes approximating the mean.

Etting and Beck divided the elderly into three groups [5]

1. The new elderly (between 60 and 64 years of age)
2. Transition group (between 65 and 75 years of age)
3. The older elderly (75 years of age and old)

Ettinger and Beck also classified according to functional needs [7]

1. Functionally independent elderly
2. Frail elderly
3. Functionally dependent elderly

Janet Yellowitz and Michele J Saunders classification [7]

1. Well elderly
2. Frail elderly
3. Functionally dependent elderly
4. Severely disabled, medically compromised elderly

Senile Changes in Mastication

The masticatory apparatus consists of the tongue, cheeks, gums, and teeth. Jaws, TMJ, muscles and nerves, and salivary glands. As you age, your teeth's enamel may become more brittle and impervious [8]. Formation of secondary dentin: the pulp's radial diameter progressively shrinks as secondary dentin forms. Preventing pulp reactions or pulp exposure in relation to caries or severe tooth wear may be seen as a suitable host response, which could also result in a decrease in sensitivity [9]. The pulp in the elderly has little resistance, and an inflammatory response frequently causes pulp necrosis and infection at the apex and surrounding bone [10]. The pulp in the elderly has poor resistance, and an inflammatory reaction frequently causes pulp necrosis and infection at the apex and surrounding bone [11]. In a group of individuals with cranio-mandibular diseases of arthrogenous etiology, *Victor J. Miller* discovered that the vertical condylar asymmetry index decreased with patient age [12]. RRR is thought to be a multifactorial, biomechanical disease that is influenced by anatomical, metabolic, and mechanical aspects.

Geropsychology

It is a subfield of psychology that focuses on older persons' mental, emotional, and behavioural health. Understanding geropsychology is crucial for handling elderly patients in dentistry, particularly prosthodontics. Cognitive decline, melancholy, anxiety, or decreased adaptability are all possible side effects of aging that might affect a person's willingness to accept treatment, maintain good oral hygiene, and comply with rules. Social disengagement, low self-esteem, and feelings of insecurity might result from tooth loss and the necessity for prosthetics. Dental practitioners can better manage patient expectations, engage with patients, and enhance adaption to dentures or other oral rehabilitation procedures by using a psychologically informed approach. Clinicians can greatly improve the quality of life and treatment results for elderly patients by combining psychosocial therapy with prosthodontic treatment [6].

Prosthodontic Needs and Limitations in Older Adults

Over time, early tooth loss in older patients can disturb the dental arch. Drifting, tipping, and supra-eruption can produce problems with prosthodontic therapy, including problems with hygiene, periodontal diseases, nonparallel abutments, and food traps. The integrity of each tooth and its role in the masticatory system must be given top priority during treatment planning, taking into consideration any potential restorative, occlusal, and functional difficulties. While implant-supported prostheses, which offer greater stability and retention, can frequently address the drawbacks of traditional removable dentures, such as compromised function, removable prostheses for complete or partial edentulism should guarantee precise occlusal, dental, and aesthetic alignments developed over a lifetime [3].

A number of issues, including as tooth loss, poor ridge anatomy, poor performance of removable dentures, patient psychological demands, and predictable long-term implant outcomes, are contributing to the growing awareness and desire for implant treatments among the elderly. Although pulpal stenosis, extensive tooth restoration, and poor hygiene are contraindications, fixed prosthodontics seeks to maintain tooth position, improve structural integrity, and produce an aesthetically pleasing restoration [5].

Medication Management in Geriatric Dentistry

In the administration of senior health care, the cautionary adage "Go low, go slow" is frequently cited. Extra care must be taken while administering drugs to elderly individuals at dental offices. The margin of safety, or therapeutic window, in which a medication is safely effective may be significantly reduced by age-related physiological changes as well as pharmacokinetic and pharmacodynamics anomalies. Consulting with the patient's doctor can help prescribe medications in a safe and efficient manner [13].

Table 1: Drugs prescribed by dentist and Condition precipitated or exacerbated Drugs prescribed by dentist [5]

Drugs prescribed by dentist	Condition precipitated or exacerbated
Pilocarpine	Asthama
NSAID	Congestive heart failure, Hypertension, Peptic ulcer
Glucocorticoids	Diabetes mellitus, Osteoporosis
Benzodiazepines Barbiturates, Anticholinergic agents	Organic brain syndrome
Aspirin	Gout, peptic ulcer

In 1950, Dr. MM House divided patients' mental states into four categories [14]

- **Class I:** Philosophical
- **Class II:** Exacting
- **Class III:** Hysterical
- **Class IV:** Indifferent

Sharry classification [15]

1. **Tolbuds:** Patients who were able to adapt to wearing their prosthesis in any orientation.
2. **Tolad:** Patients who, with certain alterations, could be able to live with a prosthetic.
3. **Toln:** Chronically ill patients who were able to take absolutely nothing in.

Role of Prosthodontist

Since the prosthodontist works primarily with the middle and older age groups, he is most concerned with the general health and well-being of the older patient. It is a common tendency to become so engrossed with the technical details of denture construction that we lose sight of the patient as a whole, most of us are familiar with the aging patient with poor mental and physical health for whom no prosthodontist could make a satisfactory denture regardless of his technical ability [2].

Mental and physical health in patients of any age are factors exerting great influence on the successful use of dentures, hut many ui the debilitating diseases of old age impost a greater challenge to success. We must look to the physician for help in treating chronic glandular dysfunctions, circulatory disturbances, and bone and tissue pathologies, but we can and should concern ourselves with the factor oi nutrition in relation to dental dysfunction among older age groups [2].

Persons who have lost all or some of their teeth, and are using dentures, show wide variation in functional efficiency. Some of them use their prosthetic appliances with great skill while others lint1 similar appliances intolerable. The degree of skill used in constructing a denture determines to a large extent the efficiency of its use. This cannot. however, he regarded as the only criterion for successful dentures. Physicians tell us that more than half of their patients over 31 years of age complain of indigestion, which is due in great part to dental dysfunction and the resulting poor nutritional intake. Loss of natural teeth or a set of poorly fitting dentures are matters of serious concern to most old folks [2].

Difficulty in masticating food properly, which forces the patient to change to soft or liquid diet, can have serious mental and physical health effects. National problems may be difficult to handle in older people because eating habits of a lifetime are not easily changed. The older person often rebels against too much restriction or too wide a change from his accustomed foods. The aged are often childish in their likes and dislikes; they may gorge themselves on their favourite dish and refuse to eat enough of the essential foods. They are sometimes forced into adverse food patterns because of social reasons- embarrassment in properly masticating meats, fruits, arid vegetables because of poor dentitions or uncomfortable dentures. Thus they tend to seek “softer” foods. This usually results in a serious increase in carbohydrate foods [2].

Treatment Planning in Older Adults

Prosthodontic care in older adults focuses on maintaining existing tooth contacts and adapting treatment to behavioural and medical changes [16]. Common options include removable partial dentures (RPDs), overdentures (root or implant-supported), complete dentures, and implant-supported prostheses [17]. Overdentures preserve bone and sensation but carry risks like caries near abutments. Patient classification helps determine treatment needs—ranging from no treatment to full rehabilitation. Fixed prosthodontics in geriatrics should aim to preserve remaining tooth structure, ensure proper emergence profiles, and maintain occlusal harmony [18].

Implants are viable for elderly patients and improve function, preserve dentition, and replace key abutments. Post-treatment, a recall program (every 6-12 months) should focus on hygiene, disease activity, ridge resorption, and denture evaluation to ensure long-term success [19].

Conclusion

Prosthodontic management of elderly patients requires a holistic and individualized approach that balances technical skill with an understanding of age-related psychological, physiological, and social changes. As aging brings about functional limitations, cognitive decline, and altered oral anatomy, dental professionals must adapt treatment plans to maintain comfort, function, and dignity in older adults. A thorough understanding of geriatric psychology, systemic health, medication interactions, and prosthodontic limitations is crucial to improve outcomes and patient satisfaction. Whether using removable prostheses, fixed restorations, or implant-supported options, the goal remains to enhance quality of life while minimizing treatment complexity and risk. Compassionate care, patient education, and ongoing maintenance are key to successful long-term prosthetic rehabilitation in the aging population.

Conflict of Interest

Not available.

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