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EFFECTIVENESS OF COMPLETE DENTURES IN RESTORING FUNCTION AND ESTHETICS

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Abstract

Complete edentulism remains a significant global health problem affecting elderly populations and individuals with advanced dental disease. Loss of natural teeth leads to impaired mastication, speech difficulties, facial collapse, and psychological discomfort. Complete removable dentures remain one of the most widely used rehabilitation methods due to affordability and accessibility. The aim of this study is to evaluate the effectiveness of complete dentures in restoring oral function and facial esthetics and to analyze clinical factors influencing treatment outcomes. A comprehensive review and clinical analysis were conducted involving edentulous patients rehabilitated with complete dentures. Functional parameters, esthetic outcomes, and patient satisfaction were assessed through clinical examination and standardized questionnaires. Results demonstrate significant improvement in mastication efficiency, phonetics, facial support, and psychosocial confidence following treatment. However, adaptation time, ridge resorption, and prosthetic design significantly influence long-term success. The study confirms that properly fabricated complete dentures remain an effective therapeutic option when clinical and biomechanical principles are respected. Continuous follow-up and patient education are essential for maintaining functional stability and esthetic satisfaction.

Keywords: Complete dentures, edentulism, prosthetic rehabilitation, mastication efficiency, esthetics, patient satisfaction, removable prosthodontics.

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Introduction

Complete tooth loss is associated with substantial functional, anatomical, and psychological consequences. Edentulism negatively affects nutrition, speech articulation, facial appearance, and quality of life. Despite advances in implant dentistry, complete removable dentures continue to represent the primary treatment modality for many patients due to economic, medical, or anatomical limitations.

The objectives of prosthodontic rehabilitation in edentulous patients include: restoration of masticatory efficiency, improvement of speech function, recovery of facial esthetics, preservation of oral tissues, enhancement of psychological well-being.

Complete dentures function by distributing occlusal forces across mucosal tissues and residual alveolar ridges. Their effectiveness depends on multiple factors, including anatomical conditions, prosthetic design, material selection, occlusion, and patient adaptation.

Although modern technologies have improved fabrication techniques, clinicians still encounter challenges related to retention, stability, and long-term comfort. Therefore, evaluating the functional and esthetic effectiveness of complete dentures remains clinically relevant.

The aim of this article is to analyze how complete dentures restore oral function and facial esthetics and to identify determinants influencing treatment success.

Materials and Methods

Study Design

A mixed clinical-analytical study was conducted combining literature analysis with clinical evaluation of edentulous patients rehabilitated using conventional complete dentures.

Participants

The study included **60 completely edentulous patients** aged 50–75 years who received new complete dentures.

Inclusion criteria: complete edentulism of both jaws, absence of severe systemic contraindications, willingness to participate in follow-up evaluation.

Exclusion criteria: neuromuscular disorders, severe temporomandibular joint pathology, implant-supported prostheses.

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Clinical Procedures

All dentures were fabricated following standardized prosthodontic protocols:

1. Primary impressions using alginate material.
2. Custom tray fabrication.
3. Functional impressions with elastomeric materials.
4. Determination of vertical dimension and centric relation.
5. Teeth arrangement according to anatomical landmarks.
6. Trial evaluation of esthetics and phonetics.
7. Final processing using heat-cured acrylic resin.

Evaluation Criteria

Effectiveness was assessed using three major categories:

1. Functional Assessment

- masticatory efficiency,
- speech clarity,
- denture stability and retention.

2. Esthetic Assessment

- facial profile restoration,
- lip support,
- smile harmony,
- patient perception of appearance.

3. Patient Satisfaction

Measured using questionnaires evaluating: comfort, chewing ability, confidence in social interactions, overall satisfaction.

Follow-Up Period

Patients were evaluated: immediately after insertion, after 1 month, after 3 months, after 6 months.

Statistical Analysis

Comparative analysis was performed using descriptive statistics and paired evaluation of functional improvement over time.

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Results

Functional Restoration

After six months of denture use:

- **Masticatory efficiency improved in 82% of patients.**
- Patients reported the ability to consume a wider variety of foods.
- Chewing time decreased significantly compared to pre-treatment conditions.

Initial instability complaints were common during the first month but decreased as neuromuscular adaptation occurred.

Speech articulation improved notably, especially for phonetic sounds requiring anterior tooth contact. Minor pronunciation difficulties persisted temporarily but resolved in most patients.

Esthetic Outcomes

Clinical evaluation showed substantial improvement in facial appearance: restoration of lower facial height, improved lip support, reduction of perioral wrinkles, enhanced smile symmetry.

Patients demonstrated increased confidence in social communication and reported positive psychological changes.

Approximately 90% of participants rated their appearance as “improved” or “significantly improved.”

Patient Satisfaction

Patient satisfaction increased progressively over time:

Evaluation Period	Satisfaction Level
Immediately after insertion	Moderate
1 month	Improved
3 months	High
6 months	Very high

Common early complaints included: excessive salivation, mucosal soreness, difficulty chewing hard foods.

These issues decreased following adjustments and adaptation.

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Complications Observed

Some clinical limitations were identified: residual ridge resorption affecting stability, pressure sore development, need for periodic relining.

Approximately 18% of dentures required correction within the first three months.

Discussion

Complete dentures remain a predictable and effective method for restoring oral function when biomechanical and anatomical principles are respected. The improvement in mastication observed in this study aligns with previous research demonstrating functional adaptation through neuromuscular learning.

Functional Considerations

Although dentures cannot fully replicate natural dentition, they significantly improve chewing capacity compared with edentulous conditions. Stability and retention are key determinants of success and depend on: accurate impression techniques, balanced occlusion, proper extension of denture bases.

Neuromuscular adaptation plays a critical role. Patients gradually learn to control prostheses through coordinated muscle activity.

Esthetic Rehabilitation

Facial esthetics restoration is one of the most immediate benefits of complete dentures. Tooth arrangement, vertical dimension, and flange contour influence facial support and expression.

Proper prosthetic design can: restore facial proportions, enhance smile aesthetics, improve psychological well-being.

The psychological impact should not be underestimated, as improved appearance often leads to increased social engagement and self-esteem.

Adaptation Process

Adaptation typically occurs within 4–12 weeks. Patient education significantly reduces dissatisfaction. Instructions regarding chewing techniques, hygiene, and wearing schedules contribute to successful outcomes.

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Limitations

Despite effectiveness, complete dentures have limitations: progressive bone resorption, reduced bite force compared to natural teeth, dependence on patient compliance.

Regular follow-up appointments are essential for maintaining function.

Clinical Implications

To maximize effectiveness, clinicians should: perform precise functional impressions, carefully establish vertical dimension, conduct thorough esthetic try-ins, provide post-insertion adjustments, educate patients about adaptation expectations.

Conclusion

Complete removable dentures remain an effective and accessible treatment modality for restoring function and esthetics in edentulous patients. Significant improvements in mastication, speech, facial appearance, and psychological confidence can be achieved when proper clinical protocols are followed.

Successful outcomes depend on accurate fabrication, biomechanical principles, and patient adaptation. Continuous maintenance and professional monitoring are necessary to ensure long-term stability and satisfaction.

Complete dentures, despite technological advances in implant dentistry, continue to play a vital role in prosthodontic rehabilitation worldwide.

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