American Journal of Biomedicine and Pharmacy
https://biojournals.us/index.php/AJBP
ISSN: 2997-7177

Clinical Outcomes of Implant-Supported Prostheses versus Conventional Dentures in Edentulous Patients

Islomov Lazizbek Buston ugli
Samarkand State Medical University, Department of Oral Surgery and Dental Implantology, 1st year clinical ordinator

Buzrukzoda Javokhirkhon Davron
Assistant, Department of Oral Surgery and Dental Implantology, Samarkand State Medical University, PhD

Received: 2025, 19, Nov
Accepted: 2025, 21, Dec
Published: 2026, 22, Jan

Annotation: Edentulism remains a major oral health problem worldwide, significantly affecting mastication, speech, facial aesthetics, and overall quality of life. Conventional complete dentures have long been the standard treatment for edentulous patients; however, limitations such as poor retention, instability, and progressive alveolar bone resorption often compromise functional and patient-reported outcomes. Implant-supported prostheses have emerged as an effective alternative, offering enhanced stability, improved chewing efficiency, and greater patient satisfaction. This article provides a comprehensive comparative analysis of clinical outcomes associated with implant-supported prostheses and conventional complete dentures in edentulous patients. Functional performance, biological and mechanical complications, patient satisfaction, quality of life, and long-term success are critically evaluated to determine optimal treatment strategies in contemporary prosthodontic practice. This article presents a comprehensive analytical synthesis of clinical outcomes associated with implant-supported prostheses in comparison with conventional complete dentures among edentulous patients. Emphasis is placed

on functional efficiency, patient-centered outcomes, long-term stability, biological responses, and complication profiles. By integrating evidence from contemporary clinical studies, the work highlights how implant-based rehabilitation addresses key limitations of traditional removable dentures, including reduced masticatory performance, progressive alveolar bone resorption, and compromised quality of life. The analysis underscores the evolving role of implant-supported solutions as a standard of care in modern prosthodontics while acknowledging economic, anatomical, and systemic factors that influence treatment selection.

Keywords: edentulism, implant-supported prostheses, conventional dentures, oral rehabilitation, patient satisfaction, masticatory efficiency, dental implants

Introduction:

Complete tooth loss represents the final stage of cumulative oral disease and aging, leading to significant functional, aesthetic, and psychosocial consequences. Edentulous patients often experience impaired mastication, altered phonetics, facial collapse, and reduced self-esteem, all of which negatively affect nutrition and quality of life. Conventional complete dentures have been widely used due to their noninvasive nature and relatively low cost; however, they frequently fail to provide adequate retention and stability, particularly in the mandible, where progressive bone resorption is common. These limitations often result in discomfort, reduced chewing efficiency, mucosal irritation, and poor patient compliance. The introduction of dental implants has transformed prosthodontic rehabilitation by providing stable anchorage for prosthetic restorations. Implant-supported prostheses, including overdentures and fixed full-arch restorations, aim to restore oral function more effectively by improving retention, load distribution, and preservation of alveolar bone. As implant therapy becomes increasingly accessible, a thorough comparison of clinical outcomes between implant-supported prostheses and conventional dentures is essential to guide evidence-based treatment planning for edentulous patients. Complete edentulism remains a significant global health concern, particularly among aging populations, with profound implications for nutrition, speech, facial aesthetics, and psychosocial well-being. Conventional complete dentures have long represented the primary rehabilitative approach; however, their dependence on mucosal support and residual ridge anatomy often results in inadequate retention, instability, and progressive bone loss. The introduction of osseointegrated dental implants has transformed prosthetic dentistry by enabling fixed or removable implant-supported prostheses that offer enhanced stability and load distribution. Despite widespread adoption, clinical decision-making continues to require a critical evaluation of functional outcomes, patient satisfaction, biological risks, and cost-effectiveness. This section explores the clinical rationale for comparing these two treatment modalities and outlines the challenges that persist in achieving optimal long-term rehabilitation for edentulous individuals.

Materials and Methods:

This article is based on a comprehensive review of clinical studies published between 2000 and 2025, retrieved from PubMed, Scopus, Web of Science, and Cochrane Library databases. Search terms included “edentulous patients,” “implant-supported prostheses,” “complete dentures,” “overdentures,” “clinical outcomes,” and “quality of life.” Randomized controlled trials, prospective and retrospective cohort studies, systematic reviews, and meta-analyses were included. Data extraction focused on patient demographics, prosthesis type, implant number and location, follow-up duration, masticatory performance, prosthesis stability, peri-implant and mucosal health, complication rates, patient satisfaction, and oral health–related quality of life. Comparative analysis was performed to evaluate functional, biological, and psychosocial outcomes associated with each treatment modality.

Results:

The reviewed studies consistently demonstrate superior clinical outcomes for implant-supported prostheses compared to conventional complete dentures. Implant-supported overdentures significantly improve retention and stability, particularly in the mandible, resulting in enhanced masticatory efficiency and reduced discomfort during function. Fixed implant-supported prostheses provide the highest levels of chewing performance, closely approximating natural dentition. Patient satisfaction scores, measured using validated questionnaires, are markedly higher in implant-treated groups, particularly regarding comfort, confidence, speech, and social interaction. Conventional dentures are associated with higher rates of sore spots, instability, and difficulty chewing hard or fibrous foods. From a biological perspective, implant-supported prostheses contribute to preservation of alveolar bone, whereas conventional dentures are linked to continuous ridge resorption. Mechanical complications such as denture fractures and loss of retention are more common with conventional dentures, while implant-supported prostheses may present peri-implant mucositis or mechanical component wear, though these are generally manageable with proper maintenance. Long-term survival rates of implants supporting full-arch prostheses exceed 90% over 10–15 years of follow-up. Analysis of clinical outcomes consistently demonstrates superior masticatory efficiency in patients rehabilitated with implant-supported prostheses compared to those using conventional dentures. Objective assessments reveal improved bite force, chewing cycle coordination, and food comminution, particularly in mandibular implant-supported overdentures. Patient-reported outcomes indicate higher levels of comfort, confidence during speech, and overall oral health–related quality of life. Radiographic evaluations show reduced rates of alveolar bone resorption adjacent to implants, attributed to functional load transmission to the underlying bone. Complication profiles differ between modalities, with conventional dentures frequently associated with mucosal soreness, instability, and the need for periodic relining, whereas implant-supported prostheses exhibit technical complications such as component wear or peri-implant tissue changes, generally manageable with appropriate maintenance. Survival rates of implants remain high across long-term follow-up periods, reinforcing their clinical predictability.

Discussion:

The findings highlight clear functional and patient-centered advantages of implant-supported prostheses over conventional complete dentures. Improved stability and load distribution offered by implants enhance chewing efficiency, reduce mucosal trauma, and contribute to better nutritional intake. Preservation of alveolar bone is a critical long-term benefit, as continued resorption under conventional dentures often complicates future prosthetic rehabilitation. While implant therapy involves higher initial costs and surgical intervention, long-term outcomes and patient satisfaction often justify the investment, particularly in medically suitable patients. Conventional dentures remain a viable option for individuals with systemic contraindications, limited financial resources, or low functional demands. Treatment selection should consider anatomical conditions, systemic health, patient expectations, and ability to maintain oral hygiene.

Advances in implant design, digital planning, and minimally invasive surgical techniques continue to expand the indications for implant-supported prostheses, making them an increasingly standard of care in edentulous rehabilitation. The observed advantages of implant-supported prostheses can be attributed to biomechanical stability and preservation of peri-implant bone through functional stimulation. Improved prosthesis retention minimizes soft tissue trauma and enhances neuromuscular control, directly influencing patient satisfaction and dietary choices. Nevertheless, implant therapy is not universally applicable; systemic conditions, insufficient bone volume, and financial constraints may limit its feasibility. Conventional dentures continue to serve as a viable option in selected cases, particularly when carefully fabricated and regularly adjusted. The discussion highlights the importance of individualized treatment planning, interdisciplinary collaboration, and patient education. Emerging digital workflows and minimally invasive implant techniques are expected to further reduce barriers and expand access to implant-based rehabilitation.

Conclusion:

Implant-supported prostheses demonstrate superior clinical outcomes compared to conventional complete dentures in edentulous patients, particularly in terms of stability, masticatory efficiency, patient satisfaction, and preservation of alveolar bone. While conventional dentures remain an acceptable treatment option in selected cases, implant-supported solutions provide more predictable and long-lasting functional and psychosocial benefits. Individualized treatment planning, informed by clinical evidence and patient-specific factors, is essential to achieve optimal outcomes. Continued research and technological advancements are expected to further refine implant-based rehabilitation strategies and improve the quality of life for edentulous individuals. Implant-supported prostheses demonstrate clear clinical superiority over conventional complete dentures in terms of functional performance, patient satisfaction, and preservation of oral structures in edentulous patients. While traditional dentures remain relevant in specific clinical contexts, implant-based solutions represent a more stable and biologically favorable approach to long-term oral rehabilitation. Optimal outcomes depend on careful patient selection, meticulous prosthetic design, and structured follow-up care. Continued research and technological advancements are likely to further refine treatment protocols and enhance the predictability of implant-supported prosthetic therapy.

References:

1. Feine JS, et al. The McGill consensus statement on overdentures. Int J Prosthodont. 2002;15:413–414.
2. Thomason JM, et al. Mandibular implant-supported overdentures. J Dent. 2009;37:657–665.
3. Emami E, et al. Impact of implant support on satisfaction with mandibular dentures. J Dent Res. 2009;88:784–789.
4. Awad MA, et al. Implant overdentures and patient quality of life. J Dent Res. 2003;82:706–710.
5. Van Waas MAJ. Determinants of dissatisfaction with dentures. J Prosthet Dent. 1990;63:569–572.
6. Papaspyridakos P, et al. Survival of implant-supported fixed complete dentures. J Prosthet Dent. 2012;108:86–93.
7. Batenburg RH, et al. Mandibular overdentures supported by two implants. Clin Oral Implants Res. 1998;9:49–56.
8. Allen PF, McMillan AS. A review of the functional and psychosocial outcomes of implant-supported dentures. J Prosthet Dent. 2003;89:29–38.

9. Carlsson GE. Clinical morbidity and sequelae of treatment with complete dentures. J Prosthet Dent. 1998;79:17–23.
10. Pjetursson BE, et al. A systematic review of the survival and complication rates of implant-supported prostheses. Clin Oral Implants Res. 2012;23(Suppl 6):22–38.