

THERAPEUTIC APPROACHES FOR THE MORPHO-FUNCTIONAL REHABILITATION OF THE PARTIALLY EDENTULOUS AREA THROUGH TEMPORARY PROSTHESIS

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Abstract

Partial edentulism presents significant challenges in maintaining oral morphology, functionality, and esthetics. Temporary prostheses play a pivotal role in the transitional management of these cases, preserving tissue integrity, supporting masticatory and phonetic functions, and facilitating esthetic restoration. This review explores the therapeutic approaches employed for the morpho-functional rehabilitation of partially edentulous areas through temporary prosthetic solutions, emphasizing clinical outcomes. Different types of provisional restorations, including removable and fixed designs, are analyzed based on their indications, material choices, fabrication techniques, and expected performance. Clinical evaluation criteria such as alveolar ridge stability, functional adaptation, esthetic satisfaction, and biological responses are discussed. Patient-reported outcomes highlight the importance of comfort, retention, and quality of life during provisionalization. Technological advances, notably CAD-CAM and 3D printing, have significantly improved temporary prostheses' precision, customization, and durability. However, despite technological progress, individualized clinical planning, meticulous execution, and patient compliance remain essential for optimizing therapeutic results. Temporary prostheses not only bridge the gap to definitive rehabilitation but also critically influence the long-term success of prosthodontic treatments. Understanding their role and limitations is fundamental for achieving predictable, stable, and patient-centered outcomes in modern prosthetic dentistry.

Keywords: temporary prosthesis, rehabilitation, edentulism, provisional restoration, clinical outcomes, esthetics, prosthodontics

Introduction

Partial edentulism represents a common clinical condition that significantly impacts both the morphology and functionality of the oral system. The absence of teeth leads to progressive alveolar bone resorption, altered occlusal dynamics, impaired mastication, phonetic difficulties, and aesthetic deficiencies, ultimately reducing patients' quality of life. Immediate rehabilitation of the edentulous area is essential to preserve anatomical structures, restore oral functions, and prevent psychosocial distress. In this context, temporary prostheses play a critical therapeutic role by providing an interim

solution that supports the morpho-functional stability of the oral environment until definitive treatment can be accomplished [1-3].

Temporary prostheses are specifically designed to serve multiple purposes: they protect healing tissues, maintain space and occlusal relationships, restore aesthetics, and reestablish basic functions such as mastication and speech. They also facilitate tissue conditioning and guide the reshaping of the edentulous ridge for optimal definitive prosthetic rehabilitation. Moreover, provisional prosthetic solutions can assist clinicians in

evaluating treatment plans dynamically, allowing necessary adjustments based on biological responses and patient adaptation [1-4].

Given the transitional nature of temporary prostheses, a variety of designs, materials, and fabrication techniques have been developed to meet different clinical needs. From simple acrylic removable partial dentures to sophisticated fixed interim restorations supported by teeth or implants, the choice of therapeutic approach depends on several factors: the extent of edentulism, the condition of the remaining dentition, the health of the supporting tissues, esthetic demands, functional requirements, and the planned final rehabilitation [1-5].

Despite their temporary function, these prostheses must fulfill stringent clinical criteria, as inadequate provisionalization can compromise the

outcome, leading to unfavorable morphological changes, periodontal deterioration, or implant failures. Therefore, a meticulous approach to diagnosis, treatment planning, and execution is critical to maximize the therapeutic benefits of temporary prostheses [2-4].

This review aims to systematically analyze the therapeutic approaches employed for morpho-functional rehabilitation of partially edentulous areas using temporary prostheses, focusing on clinical outcomes evaluation. By reviewing current evidence, the objective is to highlight the advantages, limitations, and clinical significance of provisional prostheses in modern prosthodontic treatment strategies, offering a structured overview to guide clinical decision-making and optimize patient care.

Table 1. Key concepts from introduction

Concept	Description
Partial edentulism	Loss of one or more teeth causing functional, esthetic, and structural changes.
Consequences	Alveolar bone resorption, altered mastication, phonetic difficulties, esthetic issues.
Importance of immediate rehabilitation	Prevents tissue collapse, preserves function, supports psychological well-being.
Role of temporary prostheses	Interim restoration of function and esthetics; protection of healing tissues.
Functions of temporary prostheses	Space maintenance, occlusal stability, tissue conditioning, esthetic support.
Types of temporary prostheses	Removable partial dentures, fixed provisional restorations (tooth- or implant-supported).
Objectives of the review	Analyze therapeutic approaches and clinical outcomes of temporary prostheses.

Therapeutic approaches for morpho-functional rehabilitation

Therapeutic strategies for morpho-functional rehabilitation of partially edentulous areas through temporary prostheses are highly diversified, reflecting the complexity of clinical scenarios. Temporary prostheses can be classified into removable and fixed types, each with

specific indications. Removable partial dentures, typically fabricated from acrylic resins, offer a quick and economical solution for space maintenance, occlusal stabilization, and aesthetic restoration. They are often indicated in cases where tissue healing or significant remodeling is anticipated before definitive prosthetic intervention [4-7].

Fixed temporary prostheses, supported by natural teeth or implants, provide superior functional and aesthetic outcomes by ensuring greater stability and better load distribution. Tooth-supported provisional fixed bridges are commonly used when abutment teeth offer sufficient periodontal support. Implant-supported provisional restorations are particularly valuable in cases of immediate loading protocols, promoting peri-implant tissue maturation and preserving ridge architecture [4-8].

Selection of the appropriate type of temporary prosthesis depends on multiple clinical criteria, including the number and distribution of missing teeth, periodontal status of remaining dentition, alveolar ridge morphology, and patient-specific functional and aesthetic expectations. In addition, the anticipated duration of provisionalization heavily influences the choice of materials and design features, with longer-term provisionals requiring more durable materials such as fiber-reinforced composites or milled acrylics [4,7-9].

Fabrication techniques are also a determinant factor, with direct methods offering chairside immediacy and indirect methods ensuring superior fit, esthetics, and mechanical strength. Contemporary advancements, such as CAD-CAM and 3D printing technologies, have further refined the precision, reproducibility, and customization of temporary prostheses, enhancing both clinician workflow and patient outcomes [7-9].

Ultimately, the therapeutic approach must be individualized, balancing biological preservation, functional needs, and aesthetic demands to create an optimal environment for definitive prosthetic rehabilitation [5,7-9].

Clinical outcomes evaluation

The clinical evaluation of temporary prostheses in partially edentulous rehabilitation focuses on morpho-functional, esthetic, patient-reported, and biological parameters. Morpho-functional

outcomes are critical, as temporary prostheses help stabilize the alveolar ridge, prevent collapse of the edentulous space, and maintain interarch relationships. Adequate provisionalization preserves masticatory function, supports normal speech, and minimizes neuromuscular alterations that can occur following tooth loss [8-10].

Esthetic outcomes are equally important, especially in anterior regions where the restoration of smile line, gingival contour, and facial support influence both psychological well-being and social interactions. A well-designed temporary prosthesis should mimic natural dentition in terms of color, shape, and position, providing patients with a satisfactory appearance during the healing or transitional phases [8-11].

Patient-reported outcomes are increasingly recognized as essential indicators of success. Comfort, retention, stability, phonetic adaptation, and overall satisfaction are central to the acceptance of temporary prostheses. A positive experience during provisionalization fosters patient compliance and confidence in the treatment plan, while negative experiences can undermine future rehabilitative efforts [7-11].

Biological and technical complications must be carefully monitored. Poorly adapted or improperly maintained temporary prostheses can lead to soft tissue irritation, inflammatory responses, plaque accumulation, and acceleration of alveolar resorption. Technical failures such as fractures, debonding, or loss of retention may necessitate repairs or remakes, prolonging treatment time and increasing patient frustration [7,8-11].

Overall, successful clinical outcomes with temporary prostheses depend on precise planning, careful fabrication, regular follow-up, and patient education. When appropriately designed and maintained, temporary prostheses not only restore essential functions and esthetics but also create a stable biological

and mechanical foundation for the final prosthetic rehabilitation [7-13].

Discussion

The use of temporary prostheses in partially edentulous rehabilitation demonstrates a profound impact on clinical success by preserving tissue morphology, supporting function, and guiding esthetic outcomes. Literature consistently emphasizes that well-designed provisionalization prevents alveolar ridge collapse, maintains periodontal health, and facilitates patient adaptation to definitive restorations. Comparative studies reveal that fixed provisional restorations, particularly those supported by implants, provide superior functional stability and esthetic integration compared to removable appliances, albeit with higher cost and technical complexity [13-16].

Nevertheless, removable temporary prostheses remain valuable, especially in cases requiring extensive healing or when financial or anatomical constraints limit immediate fixed solutions. Biological complications, such as tissue inflammation and bone resorption, are more frequently associated with ill-fitting or poorly maintained provisionals, highlighting the critical role of regular follow-up and patient education [14-17].

Technological advancements, including CAD-CAM fabrication and additive manufacturing, offer increased precision, improved mechanical properties,

and enhanced customization for temporary restorations, suggesting a promising future direction. However, current evidence underscores that clinical judgment, individualized planning, and meticulous execution remain the cornerstone of successful provisional rehabilitation. Therefore, balancing biological preservation, functional optimization, and esthetic satisfaction through appropriate temporary prostheses is vital to ensuring favorable long-term outcomes in prosthodontic treatment [14-18].

Conclusion

Temporary prostheses are indispensable in the rehabilitation of partially edentulous patients, ensuring preservation of tissue morphology, restoration of function, and maintenance of esthetics during treatment transitions. Properly planned and fabricated provisionals support biological healing, stabilize occlusion, and enhance patient adaptation to definitive prosthetic solutions. Clinical success relies on individualized therapeutic approaches, precise execution, and regular monitoring. Advances in materials and digital technologies further optimize provisional outcomes, yet clinical expertise remains central. Ultimately, temporary prostheses form a critical foundation for achieving predictable, long-term success in prosthodontic rehabilitation.

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