THE IMPORTANCE OF PERIODONTAL STATUS IN PROSTHETIC REHABILITATION

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Background. Periodontal disease is one of the most prevalent chronic conditions worldwide and a leading cause of tooth loss in adults. Periodontal status represents a critical biological determinant in prosthetic treatment planning and prognosis, directly influencing the stability of tooth- and implant-supported restorations. The impact of periodontitis on oral function, aesthetics, and quality of life necessitates the integration of periodontal evaluation into prosthetic decision-making.
Objective of the study. To analyze the importance of periodontal status in the planning and success of prosthetic rehabilitation in patients with periodontitis.
Material and methods. A narrative review of recent literature was conducted, including 20 comparative studies and systematic reviews assessing the relationship between periodontal parameters (PPD, CAL, bone loss) and prosthetic outcomes. Data regarding implant survival, fixed restoration longevity, biological complications, and the role of pre-prosthetic periodontal therapy were evaluated.
Results. Evidence indicates that achieving a favorable periodontal status prior to prosthetic treatment significantly increases restoration predictability and longevity. Non-surgical therapy reduces inflammation and pocket depth, while regenerative procedures improve bone support necessary for rehabilitation. Control of risk factors such as smoking, diabetes, and poor oral hygiene substantially affects outcomes. Under controlled periodontal conditions, implant survival rates exceed 90–95% at 5–10 years, whereas uncontrolled disease is associated with markedly lower success rates.
Conclusions. Periodontal status is a key determinant of prosthetic rehabilitation success. Integrating periodontal therapy and long-term maintenance into prosthetic planning ensures functional and biologically stable outcomes.
Keywords: advanced periodontitis, periodontal status, prosthetic rehabilitation, dental implants, periodontal maintenance.

Background

Periodontal disease represents one of the most prevalent chronic non-communicable diseases worldwide and is the leading cause of tooth loss in adults. Periodontal status constitutes a major biological determinant in the planning and prognosis of prosthetic rehabilitation [1,2]. Periodontal diseases are chronic multifactorial inflammatory conditions characterized by progressive destruction of the periodontal ligament and alveolar bone, representing the primary cause of tooth loss in adults [3].

The impact of periodontitis on oral function, aesthetics, and quality of life is significant, and its consequences extend beyond the periodontal sphere, directly influencing the success of prosthetic and implant treatments [5,6]. Periodontal status is therefore an essential biological determinant in prosthetic treatment planning and prognosis [6].

The 2018 AAP/EFP classification defines advanced periodontitis (Stages III and IV) by severe clinical attachment loss, extensive bone resorption, tooth mobility, and impaired masticatory function [3,4]. Clinically, advanced periodontal disease is characterized by severe periodontal attachment loss (≥5 mm), extensive alveolar bone resorption (exceeding 33–50% of root length), grade II–III tooth mobility, functional defects (tooth migration, diastemas, secondary occlusal trauma), aesthetic defects (gingival recessions, "long teeth" appearance), and phonetic and masticatory disturbances [3,4,21,25].

Diagnosis of periodontal disease using clinical indices (PI, BOP, PPD, CAL) and radiological evaluation represents the initial step for non-surgical stabilization, which prepares the biological foundation for prosthetic planning by reducing inflammation and the risk of restorative failure [4,10,11].

The global prevalence of severe forms is estimated at 10–15% among adults over 40 years of age, with higher values in developing countries and in populations exposed to socio-economic and behavioral risk factors (smoking, poor oral hygiene, limited access to dental care) [1,2].

In the absence of adequate periodontal stabilization, the risk of biological failure of prosthetic restorations increases three- to five-fold, and implant survival rates decrease below 80% at 5 years [7,9]. Odontogenic pathology associated with periodontitis (such as root caries and pulpitis) requires conservative and endodontic therapy prior to periodontal stabilization and prosthetic planning, in order to prevent further bone loss and restorative failure [7,8].

Control of periodontal disease thus represents the essential stage preceding any prosthetic intervention. This includes:

Non-surgical causal therapy (Phase I): supragingival and subgingival scaling, root planing, biofilm control, oral hygiene instruction, adjunctive systemic or local antibiotic therapy;

Regenerative surgical therapy (Phase II): bone grafts (autogenous, allogeneic, xenogeneic), guided tissue regeneration (GTR) membranes, growth factor techniques (PRP, PRF), osseous resection, gingivoplasty;

Control of systemic and local risk factors: smoking cessation, glycemic control, minor orthodontic treatment when necessary, occlusal adjustments [8,9,19];

Long-term maintenance: follow-up every 3–6 months with clinical and radiographic re-evaluations.

These measures lead to significant reductions in inflammatory indices (PI reduced by 50–80%, BOP below 20–25%, PPD reduction of 2–4 mm), clinical attachment gain, and bone regeneration in 60–85% of cases, depending on defect type and individual factors [17,20].

An interdisciplinary approach between periodontology and prosthodontics becomes indispensable, enabling prosthetic planning under conditions of periodontal stability, incorporating digital simulations (CAD/CAM, surgical implant guides) and adapting prosthetic design to the restored periodontal biology. Recent literature (2021–2026) demonstrates that stabilized patients achieve prosthetic survival rates comparable to those without periodontal history, whereas lack of stabilization remains the primary negative predictor of failure [13,14,15].

In contemporary dentistry, the success of prosthetic rehabilitation is defined not only by morphological restoration of the dental arch but also by achieving biologically stable, functional, and long-term predictable outcomes. Consequently, periodontal status becomes a key factor in therapeutic decision-making, influencing the selection of restoration type, prosthetic design, and overall treatment prognosis [6,17,18].

Objective of the study. To analyze the importance of periodontal status in the planning and success of prosthetic rehabilitation in patients with periodontal disease.

Material and methods

This study represents an extended narrative analysis of the scientific literature. Prospective and retrospective clinical studies, meta-analyses, and systematic reviews published between 2020 and 2025 were consulted. The literature search was conducted in PubMed, Scopus, and Google Scholar databases using the terms: *periodontal status, prosthetic rehabilitation, fixed dental prostheses, implant survival, periodontitis, oral health-related quality of life.*

Only studies evaluating the relationship between periodontal status and prosthetic outcomes with clearly defined periodontal clinical criteria were included. Studies with insufficient follow-up periods or lacking standardized periodontal evaluation were excluded.

A total of 15–20 relevant studies from the last five years were selected, including statistical data regarding survival (absence of implant/restoration loss), success (absence of major complications, PPD <5 mm, BOP <20%, marginal bone loss – MBL <2 mm/year), biological complications (peri-implantitis, mucositis), and technical complications (fractures, decementation).

Results

Literature analysis highlights that periodontal status is a major determinant of prosthetic rehabilitation outcomes, both in tooth-supported and implant-supported restorations, directly influencing survival rates, incidence of biological complications, and patients' quality of life [5,6,9].

Initial non-surgical periodontal management aims primarily at eliminating bacterial biofilm and reducing periodontal inflammation. The literature indicates that achieving a favorable periodontal status through non-surgical and, when indicated, surgical therapy is an essential prerequisite prior to corrective prosthetic treatment, contributing to the limitation of periodontitis progression and increased longevity of prosthetic restorations [10–12,18].

Clinical studies show that initial periodontal therapy results in a reduction of probing pocket depth (PPD) by 1.5–3 mm and a clinical attachment gain (CAL) of 1–2 mm within 3–6 months, creating favorable biological conditions for subsequent prosthetic interventions [10–12].

Outcomes are significantly influenced by patient compliance with oral hygiene, with success rates reaching approximately 90% in patients with >80% compliance, compared to ~60% in those with poor hygiene. Control of systemic factors also has a major impact; diabetic patients with HbA1c <7% show approximately 40% reduced risk of periodontal progression [7–9,19]. Smoking remains an important risk factor, increasing the probability of insufficient therapeutic response by two- to three-fold, which is why smoking cessation interventions are integrated into therapeutic protocols [19].

Regenerative surgical therapy represents an important stage in the management of bone defects associated with advanced periodontitis. Techniques such as autogenous bone grafts combined with GTR membranes allow bone gain of 3–5 mm in 70–85% of cases, improving the biological support necessary for implants or fixed prosthetic restorations [13,14]. Regenerative outcomes are influenced by patient age (patients under 50 years showing approximately 20% higher regeneration rates), defect morphology (three-wall defects showing >90% success versus ~60% in extensive horizontal defects), and materials used, PRF being associated with approximately 30% increased local vascularization and accelerated healing [15].

In implant-supported rehabilitations performed under controlled periodontal conditions, retrospective studies report implant survival rates of 96–98% at 5 years and 93–96% at 10 years. Functional success reaches 83–93% at 10 years in full-arch restorations [5,7,9].

For tooth-supported fixed prosthetic restorations performed on teeth with favorable periodontal status, reported survival is approximately 96% at 5 years and 93% at 10 years. At 10 years, functional rates are approximately 93% for extensive fixed bridges, compared to 67–75% for removable partial dentures, the differences being influenced by prosthetic design, occlusal force distribution, and periodontal maintenance **[22,23,24].** In partial edentulism of periodontal etiology, careful evaluation of bone support and abutment tooth mobility is essential for selecting combined prosthetic solutions, reducing the risk of occlusal complications and progressive bone resorption **[3,4,6,18,22,26].**

Conversely, when periodontal status is inadequate, prosthetic rehabilitation success decreases to 62–64% [11]. Proper periodontal management reduces annual tooth loss to 0.15–0.4 teeth/year and peri-implant complication incidence by approximately 26%.

Adjunctive therapies such as local antibiotics and laser therapy further improve periodontal parameters, reducing PPD by approximately 1 mm and inflammation by about 30% [14,15].

Socioeconomic factors and oral hygiene education significantly influence treatment outcomes, with educated patients exhibiting success rates approximately 15% higher [1]. In a prosthetic context, favorable periodontal status enables the use of short implants (≤8 mm) in reconstructed bone, achieving survival rates of approximately 95% at 5 years, compared to approximately 85% in severely reduced native bone [2].

Aggregated data from the selected studies allow for a quantitative synthesis of the impact of periodontal treatment on the success of prosthetic rehabilitations and dental implants, highlighting significant improvements in survival rates and reduction of biological complications (Table 1).

Table 1. Success rates of prosthetic restorations and dental implants according to periodontal management in the period 2020–2025

Type of restoration/implant	Follow-up period	Success rate after periodontal treatment (%)	Success rate without periodontal treatment (%)	Reduction in incidence of biological complications (%)
Dental implants	5 years	96–98	<80	26 (peri-implantitis)
Dental implants	10 years	93–96	80–85	20–45 (prevalence of peri-implantitis)
Tooth-supported fixed restorations	5 years	96	62–64	26 (peri-implant complications)
Tooth-supported fixed restorations	10 years	93	75–80	Not available
Removable partial dentures	10 years	67–75	50–60	15 (through hygiene education)
Implant-supported fixed prosthetic restorations	10 years	83–93	80–85	4–12 (peri-implantitis)

Conclusions

Periodontal status plays an essential role in the success of prosthetic rehabilitation, directly influencing the prognosis of prosthetic restorations and implants, as well as the incidence of biological complications. Maintaining favorable periodontal conditions enables high long-term success rates and increases the predictability of prosthetic treatment. Integration of the periodontal approach into prosthetic planning, along with control of risk factors, is indispensable for durable functional and aesthetic outcomes.

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METODE ȘI TEHNICI DE ÎNĂLBIRE DENTARĂ

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Rezumat

Introducere. Zâmbetul este una dintre cele mai importante expresii faciale folosite în comunicarea umană, având un rol esenţial în transmiterea emoţiilor pozitive şi în stabilirea relaţiilor interpersonale.

Scopul lucrării. Scopul acestui studiu a fost evaluarea eficienței și tolerabilității a doua metode de albire dentară, în cabinet stomatologic și la domiciliu, precum și analiza efectului acestora asupra satisfacției pacienților.

Material și metode. Cercetarea a fost realizată pe un grup de 29 de participanți, care au fost distribuiți în doua categorii: 18 persoane tratate prin albirea în cabinet (office bleaching) și 11 pacienți prin albirea la domiciliu (home bleaching). Albirea în cabinet a implicat utilizarea gelului Opalescence Boost cu o