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Interdisciplinary oral rehabilitation in adults: biological, functional, and restorative criteria for long-term clinical decisions.

Interdisciplinary Oral Rehabilitation in Adults: Biological, Functional and Restorative Criteria for Long-Term Clinical Decision-Making

Interdisciplinary Oral Rehabilitation in Adults: Biological, Functional and Restorative Criteria for Clinical Decision Making in Largo Plazo

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Summary

Oral rehabilitation in adult patients rarely boils down to replacing missing teeth or correcting an isolated occlusal alteration. In complex cases, tooth position, periodontal tissues, prosthetic space, aesthetics, masticatory function, systemic condition, and patient expectations form a set of interdependent variables. This article discusses oral rehabilitation as an interdisciplinary decision-making process, articulating evidence from prosthetics, orthodontics, periodontics, implantology, and patient-reported outcomes. The methodology consists of a structured narrative review of systematic reviews, synthesis studies, and reference literature. The analysis argues that predictability does not stem from a single technique, but from the ability to establish a comprehensive diagnosis, define restorative goals before execution, choose a biologically sustainable therapeutic sequence, and incorporate maintenance and patient experience into the success assessment.
Keywords: oral rehabilitation; dental prosthesis; orthodontics; interdisciplinary planning; periodontium; oral health-related quality of life.

Abstract

Adult oral rehabilitation rarely consists solely of replacing missing teeth or correcting an isolated occlusal problem. In complex cases, tooth position, periodontal tissues, restorative space, esthetics, masticatory function, systemic condition, and patient expectations form an interdependent set of variables. This article discusses oral rehabilitation as an interdisciplinary decision-making process, integrating evidence from prosthodontics, orthodontics, periodontology, implant dentistry, and patient-reported outcomes. The method consists of a structured narrative review of systematic reviews, evidence syntheses, and reference literature. The analysis supports the view that predictability does not arise from a single technique, but from the ability to establish a global diagnosis, define restorative goals before execution, select a biologically sustainable treatment sequence, and incorporate maintenance and patient experience into the assessment of success.
Keywords: oral rehabilitation; prosthodontics; orthodontics; interdisciplinary treatment planning; periodontal; oral health-related quality of life.

Introduction

The term oral rehabilitation is often used to describe very different treatments between

Yes, from the replacement of a single tooth to the reconstruction of extensive dentitions.

compromised. In adults, especially when there is tooth loss, migration, wear,

periodontal changes or previous treatments, the clinical problem does not belong entirely to a

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unique specialty. Kalia and Melsen (2001) already highlighted that adult orthodontics frequently
This constitutes only one part of a larger plan, in which the ultimate goal needs to be shared by
different areas.

Prosthetic literature reinforces the same logic. Abduo and Lyons (2017) observe that the longevity of
A fixed restoration depends on the harmony between the prosthesis and periodontium, involving design and teeth.
pillars, preparation, pontics, occlusion, and material. This shifts the reasoning away from the question 'which...'
procedure to perform?' for a broader question: 'what biological, functional and restorative state
"What is the intention behind building and maintaining it?" This shift in perspective is central to avoiding mistreatment.
Technically correct, but poorly sequenced.
The importance of this approach is also evident in patient-centered outcomes. Hultin et al.
(2012), in a systematic review, found a positive effect of dental loss rehabilitation on
Oral health-related quality of life in studies with better methodological quality. A
Therefore, the assessment of success cannot be limited to the survival of teeth, restorations, or...
Implants; it should include function, comfort, patient perception, and maintenance over time.
The aim of this article is to develop this reasoning across seven complementary clinical dimensions.

2. Methodology

A structured narrative literature review was conducted, focusing on interdisciplinary planning.
of adult patients undergoing oral rehabilitation. Systematic reviews, meta-
Analyses, review articles, and reference texts with clinical relevance and traceable methodology.
The conceptual search was organized around the terms oral rehabilitation, interdisciplinary dentistry,
prosthodontics, adult orthodontics, periodontal-prosthetic interface, implant treatment planning and oral
health-related quality of life. The goal was not to produce a systematic review of its own, but
To construct a critical synthesis of evidence from different areas.
For the periodontal-prosthetic interface, the review by Abduo and Lyons (2017) was primarily used.
For the relationship between orthodontics and periodontics and the approach to the adult patient, the following were considered:
works by Gkantidis, Christou and Topouzelis (2010) and Kalia and Melsen (2001).
The discussion on restorative planning associated with implants was supported by Boyce and Klemons.
(2015), while functional outcomes and patient-reported outcomes were analyzed from
by Hultin et al. (2012), Yao et al. (2018) and Srinivasan et al. (2023).
The findings were organized into seven axes: global diagnosis, interdisciplinary sequence,
Pre-restorative orthodontics, periodontal interface, prosthetic planning, tooth loss rehabilitation

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Dental care and maintenance. The article avoids turning findings from specific populations into rules.
universals.

No individualized clinical recommendations are provided. The choice of treatment depends on...
Physical examination, imaging studies, periodontal condition, occlusal relationship, disease risk, prognosis.
Aesthetics, ease of hygiene, systemic factors, and patient preference.

3.1 Global diagnosis: from the isolated tooth to the oral system

The first requirement for mature rehabilitation is to abandon a fragmented understanding of the problem.
Edentulous spaces can result from old tooth loss, but their resolution depends on...
behavior of neighboring teeth, of the antagonist, of the root position, of the tissue volume, of
occlusal dimension and aesthetic expectations. Each of these variables modifies the indication and the
sequence.

Boyce and Klemons (2015) propose that restorative planning associated with implants be
structured based on medical history, oral and occlusal examination, imaging, and decision between fixed solutions.
or removable. Although the article focuses on restorative implantology, its contribution is more
What's important is methodological: technical decisions must be preceded by defining the problem and the...
limitations.

This logic is especially relevant when the dentition has undergone multiple previous interventions.
Extensive restorations, endodontic treatments, recessions, loss of support or changes in
Positions cannot be added together mechanically. The prognosis for each unit needs to be...
interpreted within the global plan.

Defining the restorative objective should precede irreversible decisions. Preparations, extractions, or
Installation of implants performed before establishing tooth position and gingival contour,
The size of the spaces and the occlusal relationship can limit future alternatives.

The diagnosis also needs to distinguish between biological need and aesthetic desire. In some cases, the
Visual correction can be achieved through different pathways, with distinct biological costs.
The best decision is not necessarily the quickest one, but the one that preserves tissue and maintains options.
maintenance.

Therefore, the complex case should be understood as a system. The tooth remains an anatomical unit.
essential, but the restorative decision belongs to the whole formed by tissues, occlusion, function,
Aesthetics, time, and expectations.

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3.2 Interdisciplinary sequencing and reversibility

A plan can contain correct procedures and still produce an inferior result when the
The sequence is inadequate. Orthodontics, periodontal surgery, prosthetics, implants, and occlusal adjustments alter
Conditions that interfere with each other; therefore, the order of events is part of the treatment.
Kalia and Melsen (2001) emphasize the need for a well-defined goal in adult patients.
subjected to an interdisciplinary approach. In practical terms, this means knowing which movements
What dental tissues need to stabilize before a restoration can be performed?
final impressions and which steps can be postponed.
Reversibility should be considered a principle. Diagnostic procedures, wax-ups,
Mock-ups and temporary structures allow for testing dimensions, form, function, and acceptance before interventions.
permanent. This phase reduces the distance between abstract planning and the actual behavior of the system.
oral.

The sequence also needs to respect biology. Orthodontic movements in inflamed tissues,
Definitive restorations on unstable periodontium or prostheses installed before proper maturation.
The nature of the tissues creates risks that are not compensated for by the technical precision of the procedure.
Another aspect is the possibility of reassessment. In long-term treatments, new information emerges.
Periodontal response, patient adherence, tooth position change, and performance of
Temporary measures may justify adjustments to the plan.
Therefore, sequencing is not just about organizing a schedule. It's about managing uncertainty, preserving alternatives, and...
to ensure that each step produces better conditions for the next.

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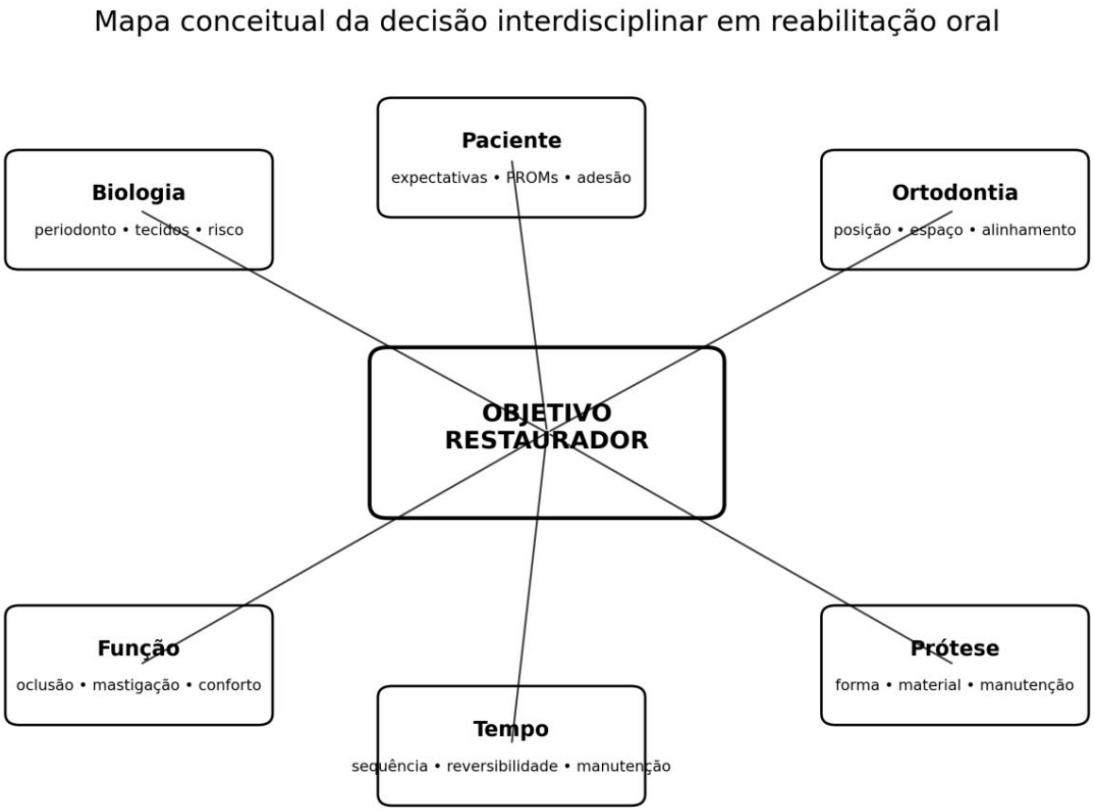

Figure 1. Conceptual map of interdisciplinary decision-making in oral rehabilitation. Own elaboration. based on the planning principles discussed in the article.

3.3 Pre-restorative orthodontics: creating space, not just aligning teeth

Orthodontics in adults with restorative needs often has a different purpose.
compared to that observed in young patients without tooth loss. The goal may be to verticalize teeth.
inclined, redistribute space, correct migrations, align margins, or create conditions for a
proportional restoration.

Gkantidis, Christou and Topouzelis (2010), in reviewing the orthodontics-periodontics interface, highlight
Tooth movement depends directly on the condition of the supporting tissues. In patients
with a history of periodontal disease, inflammation control and maintenance become prerequisites for
Safe movement.

The creation of prosthetic space needs to be planned in millimeters, but also in terms of roots, tissues, and...
proportion. A visually adequate coronal space may remain inadequate if the roots do not
are positioned for future restoration or eventual implant.

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Tooth position also influences gums and aesthetics. Orthodontic movement can alter this.
relationships between the gingival margin, papilla, and contour, which is why the objective should not be...
simply achieving an ideal classification occlusion.

In interdisciplinary cases, communication between the orthodontist and the restorative dentist needs to occur beforehand and...
during the movement. Photographs, models, wax-up, and digital planning can make the
A more explicit objective, but they do not replace the shared clinical definition.
Pre-restorative orthodontics, therefore, functions as a tool for preparing the field. Its
Success is not measured solely by the final alignment, but by the quality of the conditions delivered to...
restorative phase.

3.4 Periodontal interface and tissue architecture

A biologically inadequate restoration can compromise tissues even when it presents
Good initial aesthetics. Abduo and Lyons (2017) emphasize that harmony between fixed prosthesis and periodontium
It is crucial for the longevity of both.
Margin position, emergence profile, proximal contour, and ease of cleaning all influence the
Periodontal environment. Planning should consider gingival phenotype, bone level, papilla, and line.
of the smile and the need for tissue correction before the definitive procedure.
The presence of active inflammation changes priorities. Instead of proceeding directly to restoration,
Disease control and reassessment of tissue response must precede irreversible decisions.
The periodontal interface also affects aesthetics. Asymmetry of margins, root exposure, or
Inadequate architecture cannot be resolved simply by increasing the volume of restoration.
In some situations, orthodontic or periodontal correction preserves a more natural proportion.
The prosthetic contour should promote hygiene. Inaccessible areas can compromise a solution.
Visually refined, it is a chronic source of inflammation and difficult to maintain. Long-term aesthetics.
It depends on healthy and affordable tissue.

Therefore, the periodontium is not a passive framework for the restoration. It is an integral part of the functional outcome and
It is aesthetically pleasing and needs to be planned with the same attention given to restorative materials.

3.5 Prosthesis as a design of function, form and maintenance

The restorative prosthesis should not be understood as a finishing step. It embodies the objective.
functional and aesthetic in form, material, contacts, texture, and occlusal relationships capable of being
preserved over time.

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Abduo and Lyons (2017) remind us that prosthetic design, abutment quality, preparation, pontics,
Occlusion and material are interconnected. A high-strength material does not automatically correct itself.
an inadequate design or an unfavorable distribution of forces.
The selection of material depends on the available space, size, substrate, antagonist, and requirements.
Aesthetics and repairability. The decision should consider the life cycle of the restoration and not
only its appearance at the time of cementation.
Provisional instruments play a scientific role in this case: they allow testing of form, phonetics, contacts,
Patient tolerance and tissue response. When used in a planned manner, they function as
Reversible clinical trial prior to definitive restoration.
Maintenance needs to be planned for in the design. Access for cleaning, possibility of removal or
Repairing components and documenting the materials used are part of the quality of the treatment.
A good prosthesis, therefore, is not simply one that integrates visually. It is one that...
It solves the restorative problem with acceptable biological cost, stable function, and possible maintenance.

3.6 Rehabilitation of tooth loss and patient-centered outcomes

Replacing missing teeth can involve using removable prostheses, tooth-supported fixed prostheses,
Implants or combinations thereof. The literature does not support a single answer for all patients.
Because anatomy, cost, preference, and maintainability vary.
Hultin et al. (2012) concluded that rehabilitation of tooth loss produced positive effects on
Oral health-related quality of life in higher-quality studies. This evidence expands
The concept of benefit: chewing, social security, comfort, and perception of health are outcomes.
relevant.

Yao et al. (2018), when examining results reported by edentulous patients rehabilitated with
Different approaches to implants have shown that the patient's perspective should be considered.
incorporated into the comparison between treatments. The choice cannot be reduced to technical preference.
from the operator.

Srinivasan et al. (2023) found significant improvement in oral function in fully recovered adults.
Edentulous patients after rehabilitation with implant-supported prostheses, including performance measurements.
Chewing and bite force. The data reinforces that restorations can alter function, and not just chewing ability.
appearance.
These results should be communicated without making universal promises. Studies show
Heterogeneity of design, population, and assessment instrument. Individual benefit depends
depending on the starting point and the type of limitation that exists.

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Patient-centered outcomes help balance clinical indicators. A reconstruction
Technically flawless but not improving patient comfort, function, or perception needs to be
critically analyzed.

3.7 Maintenance, treatment aging, and long-term decision-making

All restorative treatments take time to heal. Tissues change, materials wear out, teeth shift.
Systemic conditions can alter risk. Planning maintenance means acknowledging this temporality.
From the beginning.

The need for periodontal control, restorative revisions, and occlusal evaluation depends on the patient's profile.
of risk. Fixed protocols may be insufficient for vulnerable patients and excessive for others.
The history of failures is also a source of information. Fractures, detachments, loss of retention, or
Recurrent inflammation should not be treated merely as events to be repaired; they may reveal a pattern.
Inadequate, overload, insufficient hygiene, or biological change.
Longitudinal documentation allows for comparison. Photographs, indicated radiographs, records of
Probing, modeling, and material annotations help distinguish expected evolution from deterioration.
relevant.

Maintenance is also an ethical dimension of the indication. Treatments whose maintenance depends on
Care that the patient is unable to perform may require a simpler and more sustainable alternative.
In short, the quality of rehabilitation emerges over time. Initial success matters, but the...
True clinical maturity is revealed by the ability to preserve function, tissues, and options.
therapeutic methods over the years.

Conclusion

Adult oral rehabilitation is a matter of integration, not of accumulating procedures.
The greater the complexity, the less useful reasoning based on a specialty becomes.
Isolated. A comprehensive diagnosis allows for understanding tooth loss, migration, tissues, occlusion, and
expectations as parts of the same clinical system. This understanding reduces premature decisions and
It expands the preservation of alternatives. The therapeutic sequence is part of the quality of treatment.
Reversible procedures, provisional measures, and reassessment phases create opportunities for validation.
hypotheses before definitive interventions. Pre-restorative orthodontics gains relevance when
It prepares position and space for reconstruction, instead of merely pursuing abstract alignment.
The ultimate goal should guide the movement. The integration between periodontium and prosthesis is a condition of

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Longevity. Margins, contours, and materials need to coexist with healthy fabrics and hygiene.

Possible. The prosthesis should be treated as a functional and maintenance project. Appearance, resistance

Precision and accuracy lose value when the treatment cannot be cleaned, repaired, or monitored.

Patient-reported outcomes complete the scientific analysis. Function, comfort, and quality of life do not replace clinical indicators, but they prevent success from being defined solely by the professional.

It can be concluded that the most consistent rehabilitative thinking is that which preserves tissue, organizes the sequence, tests before it becomes irreversible, and acknowledges that all reconstruction will need to be maintained. This perspective is more demanding than choosing a technique, but that's precisely what differentiates execution from clinical planning.

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