

FULL MOUTH REHABILITATION - NEED OR NECESSITY?? - A REVIEW

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ABSTRACT.

The restoration of patients with severely worn dentition is a difficult situation. Reconstructing debilitated dentition for successful full mouth rehabilitation is fraught with anxiety. This article discusses the various aspects and philosophies of full mouth rehabilitation, as well as whether full mouth rehabilitation is required. A complete literature search using PubMed and other database relevant journals. Relevant articles from January 1950 to March 20, 2022 published in the English language were considered for this study. Occlusal rehabilitation is a major procedure that should be carried out in accordance with the dentist's treatment plan, which is based on his knowledge of various philosophies and clinical skills. Once full-mouth rehabilitation is complete, the patients will enjoy better oral health, will feel better, and will even have a more attractive smile.

INTRODUCTION

The goal of dentistry is to prolong the life of the working dentition. Dentistry has traditionally been recognized as a skilled profession, but it is much more than that. It is, first and probably most important, a science. Since it focuses attention on the goal and thus provides a criterion for evaluating our procedures, a better understanding of the scientific principles underlying our techniques will inevitably improve those techniques (1–3).

To treat patients successfully, many aspects of dental treatment must be considered, including patient education, correct diagnosis, periodontal therapy, operative skills, occlusal considerations, endodontic treatment, and achieving harmony between the TMJ and occlusion. Full mouth rehabilitation has traditionally been defined as the inclusion of all diagnostic, therapeutic, and restorative procedures available for the treatment and prevention of dental disease. In a narrower, more recently acquired sense, the term refers to extensive and intensive restorative procedures in which the occlusal plane is changed in innumerable ways to accomplish equilibration (4,5).

Full mouth rehabilitation is defined as restoring the masticatory apparatus's form and function to as close to normal as possible. ' It should restore a state of functional and biological efficiency in which teeth and their periodontal structures, masticatory muscles, and temporomandibular joint (TM) mechanisms all work in unison. The goal is to restore the tooth to its natural form, function, and aesthetics while maintaining physiologic integrity in harmony with the adjacent hard and soft tissues, all while improving the patient's oral health and welfare (6–8). Our team has extensive knowledge and research experience that has translate into high quality publications (9–29) .

OBJECTIVES OF FULL MOUTH REHABILITATION.

Stress and strain are common issues in all patients who require full mouth rehabilitation. Generally, stress can be caused by a malfunction or poorly related parts of the oral mechanism. The goal of full mouth rehabilitation is to minimize these stresses so that they are not destructive. To maintain this stress from being destructive, it is necessary to evenly distribute the forces.

Full mouth rehabilitation should restore a state of functional and biological efficiency in which teeth and their periodontal structures, masticatory muscles, and temporomandibular joint mechanisms all function in synchronous harmony. So because etiology of severe occlusal tooth wear is multifactorial, proper evaluation followed by a definitive diagnosis is required. The most common reason for undergoing full mouth rehabilitation is to achieve and maintain periodontal tissue

health. Another reason is temporomandibular joint dysfunction. Extensive dentistry is required in cases of missing teeth, worn down teeth, and old fillings that need to be replaced.

Full mouth rehabilitation should include the following;

- Restore occlusal function
- Maintain healthy periodontium to ensure the longevity of remaining teeth.
- Improve objectionable aesthetics
- Improve objectionable aesthetics

Full mouth rehabilitation should return teeth and their periodontal structures, masticatory muscles, and temporomandibular joint mechanisms to a state of functional and biological efficiency. Because the etiology of severe occlusal tooth wear is multifactorial, proper evaluation followed by a definitive diagnosis is required.

A thorough examination of the patient's diet, eating habits, and/or gastric disorders, as well as the current state of occlusion, is required for proper treatment planning. To classify patients who require full mouth rehabilitation, various classifications have been proposed. Turner and Missirlian proposed the most widely accepted classification (30).

Patients with occlusal wear, according to Turner and Missirlian, can be broadly classified as;

Category 1 - Excessive tooth wear with loss of vertical dimensions. The patient's speaking space exceeds 1 mm, and the interocclusal space exceeds 4 mm, with some loss of facial contour and drooping corners of the mouth.

Category 2 - Excessive wear without vertical dimension occlusion with available space, Patients will have a history of gradual wear due to bruxism and oral habits, but the occlusal vertical dimension will be maintained through continuous eruption.

Category 3 - Excessive wear without vertical dimension of occlusal loss, but limited space, Centric relation and centric occlusion have a 1 mm closest space and a 2–3 mm interocclusal distance. Orthodontic movement, restorative repositioning, and surgical segment repositioning can all help with this.

CHOICE OF OCCLUSAL CONCEPTS AND PHILOSOPHIES.

The ideal occlusal scheme to be used during full mouth rehabilitation in order to maintain adequate muscle and joint function while restoring the occlusal surfaces of teeth has been sought. Many concepts and techniques for rehabilitating dentition with fixed prosthodontics have been discussed up to this point.

McCullum's gnathologic society inspired the early concept of comprehensive dentistry in 1926 (31,32). Their discoveries sparked the development of mandibular movements, a transverse hinge axis, maxillomandibular relationships, and the arcon fully adjustable articulator. In adults, they considered anterior guidance to be independent of the condylar path, and the condylar path to be a fixed entity. The desired characteristics of full mouth simultaneous rehabilitation and the programmed quadrant approach are combined into a single reconstructive technique in the case of segmented simultaneous technique. This technique simplifies the basic reconstruction procedures while allowing the dentist to use an appropriate occlusion for a specific patient (33).

The centric relation was determined by the position of the condyle in the glenoid fossa, which is no longer valid. The Point Centric concept was proposed, in which the condyles should sit in the mandibular fossa at the time of maximum intercuspation of the teeth in the retruded contact position. According to this theory, when the condyles are only and precisely in centric relation, the supporting cusps must make occlusal contact (33).

Schuyler was the first to propose the concept of Freedom in Centric which backed up the theory that the centric relation was a biological area of the Temporomandibular joint rather than a point. 'There is a flat area in the central fossae upon which opposing cusps contact, allowing a degree of freedom (0.5–1 mm) in eccentric movements unaffected by tooth inclines,' according to this theory. It utilizes cusp-to-surface mechanics (34,35).

Schuyler proposed that incisal guidance that does not allow for movement from a centric relation occlusion to a more anterior tooth intercuspation would lock in the posterior occlusion. Dawson referred to freedom in centric as long centric. Changes in head position and postural closure have been accommodated by long centric. The difference between centric-related closure and postural closure, which is rarely seen to be more than 0.5 mm, is considered to be the measurable amount of long centric required.

Occlusal contacts are few and badly placed in natural dentition, according to Wiskott and Belser. Furthermore, functional and parafunctional forces are not directed along the tooth's long axis. Based on this, they proposed a simplified occlusal scheme in which one occlusal contact per tooth is sufficient instead of a tripod contact, all interproximal contacts should be proper and tight so that they remain stable in the tooth mesiodistally, anterior disclusion mechanics is used so that posteriors do not experience interference on lateral excursive movements, and anteroposterior freedom of movement is used. This technique helps maintain vertical dimension and allows chewing due to the cusp-fossa relationship. It reduces the total number of occlusal contacts and can be used for both small and large restorations. This design offers occlusal stability while also meeting aesthetic requirements. The system can accommodate most prior guidelines and varying degrees of group function. Occlusal adjustment is simple and straightforward (36–38).

In their study, Hobo and Takayama discovered that anterior guidance influenced the working condylar path and concluded that they were dependent factors. Hobo developed the Twin-tables Technique based on the concept of posterior disclusion. He describes posterior disclusion as the angle of hinge rotation caused by the angular difference between anterior guidance and condylar path, as well as the inclination and shape of posterior cusps, which aid in the control of harmful lateral forces. Molar disclusion is achieved using two incisal tables in this technique. The incisal table without disclusion is the first incisal guide table used to fabricate restorations for posterior teeth (39,40).

A review of the literature revealed that occlusal schemes were also developed for oral rehabilitation in patients with periodontal diseases. For protrusive excursions, anterior disclusion is provided, and canine disclusion is provided for lateral excursions. The canine disclusion is planned in such a manner that if it is lost due to wear or tooth movement, the posterior teeth would then function as a group. Articulators which are fully adjustable or semi-adjustable could be used. Before beginning the treatment procedure, one must decide whether a full mouth simultaneous technique, which advocates simultaneous restoration of both arches, or a quadrant technique, which advocates completing restorations of one quadrant in a programmed sequence before moving on to the next, is required. The desired characteristics of full mouth simultaneous rehabilitation and the programmed quadrant approach are combined into a single reconstructive technique in the case of segmented simultaneous technique. This technique simplifies the basic reconstruction procedures while allowing the dentist to use an appropriate occlusion for a specific patient (3,5,41–43).

DISCUSSION.

Reconstructions use a variety of techniques to obtain complete arch dies and mounted casts. These techniques help to expand the unit's collateral laboratory. Because all of the prepared teeth are on a single articulator, there is more freedom in developing the occlusal plane, occlusal scheme, embrasures, crown contour, and aesthetics. Full arch anesthesia, full arch chairside treatment restorations, multiple occlusal records, possible loss of vertical dimension of occlusion, strenuous, unforeseeable patient visits, and the need for accurate cross-arch multiple tooth impressions, as well as transfer techniques to fabricate full arch working casts, are the disadvantages (44).

A different approach to full mouth simultaneous reconstruction is to finish one quadrant before starting the next. The advantages of this approach mostly are chairside, but they include select tooth preparation and final impressions, vertical dimension preservation, quadrant anesthesia, and shorter, predictable appointments. The disadvantages include existing opposing dentition that restricts reconstruction of an isolated quadrant and limitations in achieving ideal occlusion, especially when modifying the vertical dimension, occlusal plane, and embrasure development. The porcelain restorations' aesthetic consistency is also lost as they are fabricated in stages.

Before beginning treatment, it is needed to ascertain whether a full mouth simultaneous technique, which advocates simultaneous restoration of both arches, or a quadrant technique, which advocates having completed restorations of one quadrant in a programmed sequence before moving on to the next, is required. The treatment principles are universal, all functional factors are interconnected, and all efforts should be made to construct an occlusal interface in which the periodontium of teeth, masticatory muscles, and Temporomandibular joint function in harmony with each other.

This necessitates an accurate diagnosis of the underlying cause of the deranged condition, intra-oral changes, and other negative effects on jaw relations. Through rehabilitation procedures, optimal occlusion should be achieved by focusing on the patient's needs. Chewing efficiency can vary across occlusal forms and occlusal schemes, so no single rule can be applied to all patients.

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CONCLUSION

Occlusal rehabilitation is a major procedure that should be carried out in accordance with the dentist's treatment plan, which is based on his knowledge of various philosophies and clinical skills. A comprehensive study and practical approach must be directed toward the reconstruction, restoration, and maintenance of the overall oral mechanism's health. Once full-mouth rehabilitation is complete, the patients will enjoy better oral health, will feel better, and will even have a more attractive smile.

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