

Occlusal Recording Components for Dental Implant-Supported Prosthesis

A. Monzavi^{1,2}, M. Alikhasi², F. Taghavi³

¹Associate Professor, Dental Implant Research Center, Department of Prosthodontics, School of Dentistry, Tehran University of Medical Sciences Tehran, Iran

²Assistant Professor, Dental Research Center, Department of Prosthodontics and Implant, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran

³Resident of Prosthodontics, Shahed University of Medical Sciences, Tehran, Iran

Abstract

In this article, three techniques for maxillo-mandibular relationship for Replace-Select implants are described. The use of healing abutments, planning abutments, and Impression copings are presented, and the advantages and disadvantages are discussed.

Key Words: Record; Implant; Abutment

✉ Corresponding author:
M. Alikhasi, Dental Research Center, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran
malikhasi@razi.tums.ac.ir

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INTRODUCTION

The use of implants in the treatment of edentulism has quickly become part of most prosthodontic practices [1]. As a result; clinicians are frequently faced with the need to effectively and efficiently restore osseointegrated implants. Jaw relation records are a fundamental and crucial component of providing accurate, efficient and high-quality implant-supported prostheses. A disciplined and efficient practitioner understands that the use of accurate records minimizes the need for intraoral adjustment before prosthesis delivery and can therefore reduce overall treatment time and cost. However, making a correct interocclusal record for implant prostheses may be challenging in certain clinical situations. In patients with extensive edentulous spaces treated with endosseous implants, it may be difficult to hand articulate the casts accurately. In these instances, fabrication of record bases and oc-

clusion rims for interocclusal registrations is required. For implant-supported restorations, the record base may be screwed directly on the implant during the interocclusal recording procedure at a separate appointment [2]. A number of techniques have been described for the stabilization of the record bases; using healing abutments [3], gold cylinders [4], healing caps [5], or impression copings [6].

The advantage of these methods is that there is no displacement of the implant during the interocclusal recording procedure, so an accurate record may be made.

However, all the previously mentioned techniques require a second appointment for the registration of the maxillomandibular relationship which could be time consuming. Others have suggested using plastic burnout abutments for recording the maxillomandibular relationship at the same appointment the definitive impression is made [7].



Fig 1. Healing abutment is placed in order to support record material.



Fig 2. Using selected planning abutment to support wax record.

Since plastic burn-out abutments are not always the choice abutment, this technique could not be used in all clinical situations. In this article, three techniques for recording maxillomandibular relationship for Noble Biocare implants are described. The use of a planning abutment, impression coping and healing abutment are presented and the advantages and disadvantages of each are discussed. Although this technique is presented using one implant system, the technique may be modified and used with other implant systems too.

TECHNIQUES

Limited inter arch space: Healing abutment technique

1. Remove the healing abutments (Replace Selects; Nobel Biocare, Goteborg, Sweden) and make the definitive impression of the implants (Replace Selects; Nobel Biocare).
2. Replace healing abutments (Replace Selects; Nobel Biocare) with long ones (available in 3, 5 and 7 mm) and ensure that there is no interference with dentition occlusion.
3. Make the interocclusal record with a suitable material (Pink Base Plate Wax, Henry Schein, NY) (Fig. 1).
4. Fabricate the final cast with the implant replicas (Replace Selects; Nobel Biocare).
5. Screw the healing abutment (Replace Selects; Nobel Biocare) into the implant replicas (Replace Selects; Nobel Biocare).

6. Fix the maxillary cast to the mandibular cast and then mount the casts in the articulator.

Usual inter arch space: Planning abutment technique

1. Make the definitive impression of the implants (Replace Selects; Nobel Biocare).
2. Assemble the corresponding analog into the impression copings (Replace Selects; Nobel Biocare), insert them into the impression and pour the cast.
3. Connect appropriate planning abutments (Replace Selects; Nobel Biocare) to the implants (Replace Selects; Nobel Biocare). The abutments should permit mandibular closure without interference.
3. Proceed with the interocclusal registration with selected material (Pink Base Plate Wax, Henry Schein) (Fig. 2).
4. Place the planning abutments (Replace Selects; Nobel Biocare) into the implant replicas (Replace Selects; Nobel Biocare) in the definitive cast.
5. Mount the maxillary and mandibular casts with interocclusal record.

Wide inter arch space: Impression coping technique

1. Connect appropriate impression copings (Replace Selects; Nobel Biocare) into the implants (Replace Selects; Nobel Biocare).
2. Make an impression with a custom tray and



Fig 3. Closed-tray implant-level impression copings are used in an anterior edentulous area to hold interocclusal record.



Fig 4. Closed-tray abutment-level impression copings are used in a posterior edentulous area to hold interocclusal record.

elastomeric impression material (Impregum F; 3M ESPE, St.Paul, Minn).

3. Make an interocclusal record while impression copings are still screwed into the implants (Figs 3 and 4).

4. Remove the impression copings (Replace Selects; Nobel Biocare), screw to implant analogs (Replace Selects; Nobel Biocare) and place into the matching holes in the impression.

5. Pour the master cast in type IV die stone (Die- Keen; Miles Inc, St. Louis, Mo.).

6. Position the interocclusal record over the impression copings (Replace Selects; Nobel Biocare) on the definitive cast.

7. Mount the cast in an articulator (2240 Whip mix; Whip Mix Corp, Louisville, Ky) with the aid of the interocclusal record.

DISCUSSION

The accurate transfer of the interocclusal relationship is essential for providing ideal occlusion. Using existing components, regarding interarch space and recording maxillo-mandibular relationship at the same appointment of impression making not only reduces chair time but also decreases the cost of treatment. The ease and low-cost of these techniques have significant impact in encouraging practitioners to use dental implants. In addition, patients may experience less discomfort

from procedures such as the repeated removal of the healing abutments.

Lack of support of bite registration material when implants are far from each other reduces its stability and might limit the use of these techniques.

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