An Easy Technique to Obtain Articulated Casts Using the Palate for the Interocclusal Record

Dalton Matos Rodrigues, CD, MScD, DScD,[1] Flávio Henrique Carriço Nogueira Fernandes, DDS, MScD,[2] Iara Augusta Orsi, DDS, MS, PhD,[2] & Osvaldo Luiz Bezzon, DDS, PhD[2]

[1]Private practice, Natal, Brazil
[2]Department of Dental Materials and Prosthodontics, School of Dentistry of Ribeirão Preto, University of São Paulo, Ribeirão Preto, Brazil

Keywords
Interocclusal record; articulated casts.

Correspondence:
Flávio Henrique Carriço Nogueira Fernandes, Departamento de Materiais Dentários e Prótese, Faculdade de Odontologia de Ribeirão Preto, USP, Avenida do Café S/N, Monte Alegre, 14040-904 Ribeirão Preto, SP, Brazil. E-mail: flaviocarrico@forp.usp.br

Accepted February 26, 2009

doi: 10.1111/j.1532-849X.2009.00549.x

Abstract

This article describes a highly efficient technique to obtain articulated casts. Interocclusal recording is carried out using the palate as an area of registration without having to remove or section provisional prostheses while also maintaining the established vertical dimension.

When casts can be accurately related by hand into a stable centric occlusion or maximum intercuspation, manual articulation is still the most efficient method available for approximation.[1-3] The mounting of casts that do not offer stability requires the use of an interocclusal recording material that yields an exact reproduction of the interjaw relationship. Intraoral waxes, impression compounds, plasters, zinc oxide-eugenol pastes, and elastomers are among the materials that have been applied for such a purpose.[4,5]

Elastomer is commonly used, accurate, stable, and efficient. Registration for a fixed prosthesis using an elastomeric material is routinely performed between prepared teeth and natural or prepared antagonists after the removal of interim prostheses. In addition, in full-arch rehabilitations it is necessary to section the interim prosthesis at the midline to maintain and register both the preestablished occlusal vertical dimension (OVD), and the maximum intercuspation position in each hemi-arch.

Obtaining the interocclusal record using the palate as an area of registration takes advantage of the limited tissue mobility of the region, and does not require segmentation of interim prostheses at the midline. Moreover, it maintains the previously established OVD, allowing the casts to be mounted in the articulator for the fabrication of the framework. This technique may be used in full-arch rehabilitations involving either natural teeth or osseointegrated implants.

Technique

1. Manipulate the silicone putty elastomer (Zetaplus, Zhermack, Badia Polsine, Italy) and place it over the hard palate and occlusal surfaces of the interim prostheses on the maxillary arch (covering the incisal/occlusal third of the teeth) (Fig 1).
2. Ask the patient to close his/her mouth into maximum intercuspation (Fig 2).
3. Trim the excess registration material, covering the cast with a scalpel blade.
4. Mount the maxillary cast in the articulator with a facebow transfer. Fix the cast to the platform with stone (Vel-Mix, Kerr, Romulus, MI).
5. Verify that the interocclusal record is seated correctly over the mandibular cast (Fig 3).
6. The silicone must be in intimate contact with the hard palate in the maxillary cast and with the occlusal and incisal surfaces in the mandibular cast (Fig 4).
7. Fix the mandibular cast to the platform with stone.
8. The casts on the articulator are now ready for laboratory procedures. An additional advantage of this technique is that the record of the incisal edge position of the interim prosthesis may function as a guide for the production of the framework of the prosthesis (Fig 5).

Figure 1 Silicone putty elastomer placed over hard palate and occlusal surfaces.

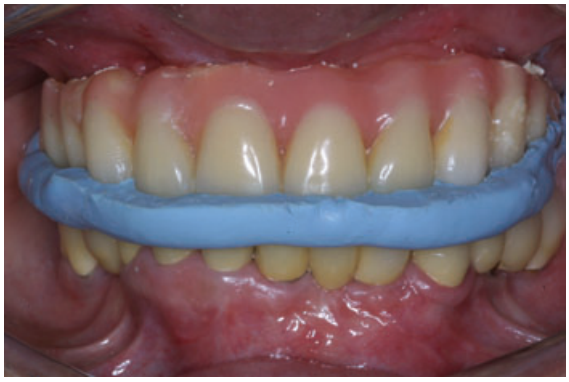

Figure 2 Maximum intercuspation.

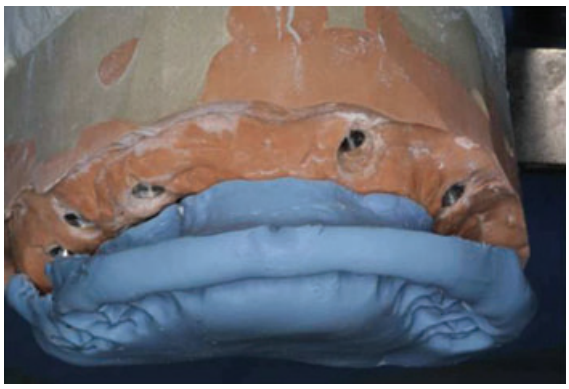

Figure 3 Interocclusal record seated over mandibular cast.

Summary

The success of dental rehabilitation depends largely on the reproduction of occlusal relationships on the articulator during all stages of treatment, which is a direct result of the procedures and materials used for interocclusal recording. The method described here allows precise registration of occlusal relationships without the need to remove or to section interim restorations, thus maintaining the OVD previously established. Moreover, registration of the incisal edge position of the interim prosthesis serves as an element of orientation for the fabrication of the definitive restoration. The method described here is easy, precise, and efficient.

Figure 4 Silicone in intimate contact with hard palate (maxillary cast), and with occlusal and incisal surfaces (mandibular cast).

Figure 5 Casts are now ready for laboratory procedures.

References

1. Campos AA, Nathanson D: Compressibility of two polyvinyl siloxane interocclusal record materials and its effect on mounted cast relationships. J Prosthet Dent 1999;82:456-461
2. Urstein M, Fitzig S, Cardash Z, et al: A method of recording the interocclusal relationship of the teeth. Dent Med 1985;3:13-15
3. Warren K, Capp N: A review of principles and techniques for making interocclusal records for mounting working casts. Int J Prosthodont 1990;3:341-348
4. Breeding LC, Dixon DL, Kinderknecht KE: Accuracy of three interocclusal recording materials used to mount a working cast. J Prosthet Dent 1994;71:265-270
5. Freilich MA, Altieri JV, Wahle JJ: Principles for selecting interocclusal records for articulation of dentate and partially dentate casts. J Prosthet Dent 1992;68:361-367