

Stabilization of interocclusal records during programming of the semiadjustable articulator

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Semiadjustable articulators are used in the fabrication of complete dentures and programmed using interocclusal records. Interocclusal records made in the centric, protrusive, right and left lateral excursive positions are generally used in programming the articulator. A split upper cast is an essential prerequisite, and the space appearing between the maxillary cast and the split helps in verifying proper seating of the cast during the programming. This article describes a simple method of stabilizing the interocclusal records and restricting the possibility of movement in the split cast.

Key words: Complete denture, interocclusal records

INTRODUCTION

Complete denture stability is defined as 'the quality of a removable dental prosthesis to be firm, steady or constant, for resisting displacement by functional horizontal or rotational stress'.^[1] The stability of the denture ensures physiological comfort to patients. The major factor that contributes to stability is the occlusion of the complete denture. To achieve a stable denture, a balanced articulation is desired in the complete denture. Balanced articulation is defined as 'the bilateral, simultaneous anterior and posterior occlusal contacts of the teeth in centric and eccentric positions'.^[2] To minimize the dislodging forces, the occlusion should be balanced throughout the functional range of the movement of the patient.^[3]

Articulators are the instruments that attempt to reproduce the range of movements of the jaws. A semiadjustable articulator is appropriate for obtaining a balanced articulation during the construction of complete dentures.^[4] Semiadjustable articulators are programmed using interocclusal records. Interocclusal records made in the centric, protrusive, right and left lateral excursive positions are used to program the articulator to simulate mandibular movements. A split upper cast is an essential prerequisite for proper programming of the articulator. A split cast is essentially a maxillary cast constructed in two parts with a horizontal division. The first part of the cast is used as a mounting cast for the upper denture and designated as the primary base. The second part, which is fitted to the primary base and is attached permanently to the upper member of the articulator, is referred to as the secondary base.^[5]

The space between the primary and secondary base of the maxillary casts helps in verifying the proper seating of the cast during the programming. While programming, the following components should be stabilized as a single unit.

- a. The primary base of the maxillary working cast
- b. Maxillary denture base with central bearing device and extraoral tracer
- c. Interocclusal record
- d. Mandibular denture base with central bearing point and extraoral tracer
- e. Mandibular working cast

Many interfaces exist between the abovementioned components. The possibility of movements occurring between the components is undetectable and results in errors. Here, we describe a simple method of stabilizing the interocclusal records and restricting the possibility of movements to the split cast.

STEPS

1. Interocclusal records are made in the centric, protrusive, right and left lateral positions coinciding with the designated points in the extraoral tracings.
2. The lower working cast is removed from the semiadjustable articulator, and the primary base of the upper working cast is separated from the secondary base of the upper cast.
3. Holes are drilled in the base of the cast above the canine and first molar region on either sides of the upper and lower working casts using a number 6 round bur.
4. Double dowel pins are attached to the prepared holes with the help of cyanoacrylate. Care should



Figure 1: Cast bases and interocclusal records connected as one unit using a thread joining the dowel pins



Figure 2: Gap between the primary and the secondary bases of the upper working cast

be taken to ensure that the position of the pins forms a rectangle or a square.

5. The lower working cast is positioned back in the articulator with the mounting plate.
6. The lower denture base with a central bearing device and extraoral tracer is positioned on the cast.
7. The centric interocclusal record is positioned over the lower occlusal rim.
8. The upper denture base with a central bearing device and tracer is oriented over the interocclusal record.
9. The primary base of the upper working cast is positioned over the upper permanent denture base.
10. This assembly consisting of casts, bases and interocclusal records is connected by joining these pins with a thread [Figure 1] on both the sides. This ensures the assembly to function as a single unit and restricts the movements to the split cast.
11. Any inconsistency between the tentative centric relation position and the centric relation position recorded using extraoral tracing will be visible only between the primary and secondary bases of the split upper cast [Figure 2].
12. The procedure from step seven is further repeated using the protrusive, right and left lateral records and the articulator is programmed accordingly.

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