



# A Simplified Method for Fabrication of New Complete Dentures

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**ABSTRACT** This article discusses a simple technique for fabricating a new set of complete dentures when there is a reasonable existing upper and lower denture pair. This method reduces the number of appointments needed, and may be very helpful in treating patients with transportation difficulties, especially when the dentist is able to perform some simple laboratory procedures such as mounting the case on the articulator. The technique is well-suited for a “worn-out” set of complete dentures.

## AUTHORS

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**M**any dental school courses in removable prosthodontics teach that five or six appointments are necessary in fabrication of complete dentures.<sup>1</sup> The typical appointment sequence progresses from preliminary impressions (in order to make custom trays), final impressions (for master cast and record base construction), records appointment, trial denture appointment, and insertion and delivery, if all the steps can be verified.<sup>2</sup> When an existing set of complete dentures exhibits extreme wear of the occlusal surfaces, loss of occlusal vertical dimension is often present.<sup>3</sup> In this circumstance, the anterior teeth often begin to fracture or become dislodged from the denture base due to increased vertical overbite, laterotrusion, as well as protrusive forces.

When the patient is basically satisfied with the current prostheses, a new set with proper occlusal function can be of enormous benefit in restoring masticatory

ability. The operator may elect to use a different occlusal scheme in order to perfect the patient's evident wear patterns by selection of a different arrangement such as a lingualized set-up. Using the lingualized arrangement (10-degree maxillary posteriors with lingual cusps centered in the fossae of monoplane mandibular posteriors), for example, may be a more appropriate occlusal scheme for a patient than the existing monoplane or cusped set-up. (More information about the lingualized arrangement may be found in the Trubyte technique manual for denture teeth [Dentsply International, York, Pa.], and in some denture texts). The new dentures may also be retrofitted as implant overdentures at a later date.

These changes may be easily accomplished with the proposed method of denture construction herein.

## Technique

1. At the first appointment, occlusal vertical dimension is measured, and verified with the existing dentures



**FIGURE 1.** Existing set of full dentures exhibiting heavy wear on occlusal surfaces.

(**FIGURE 1**). Occlusal vertical dimension may be increased/restored or decreased by up to 3 mm on the articulator.<sup>4</sup>

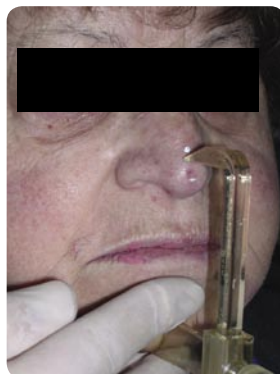
2. A centric relation record is taken with a bite registration material, and a facebow record is made against the upper denture (**FIGURES 2-3**).

3. A wash of the impression material of choice is placed onto the intaglio surface of the old dentures. Border molding techniques may be used to extend or otherwise improve the fit of the new prostheses (**FIGURES 4-5**).

4. The impressions/dentures are then boxed and poured (stone such as Microstone, Whip Mix, Louisville, Ky., may be used).

5. The master casts are trimmed, indexed, and mounted on the articulator using the facebow transfer and C/R record from Step 2 (quickset plaster such as Mounting Stone by Whip Mix, Louisville, Ky.). Note that the master casts and dentures are not yet separated from the impression media.

6. An index is obtained by closing the mounted maxillary denture into quickset



**FIGURE 2.** Checking occlusal vertical dimension with instrument of choice (*Dr. Hass verticorder shown*).



**FIGURE 3.** Facebow registration taken from existing full upper denture with Hanau facebow (*Waterpik Inc., Fort Collins, Colo.*).



**FIGURE 4.** Existing full upper and lower dentures with impressions taken in centric relation, individually or together, as per operator preference, closed mouth technique. The patient is instructed to use only light biting pressure.



**FIGURE 5.** Existing articulated dentures with impressions within, and C/R record done with Regisil.

plaster on the remount jig (**FIGURES 6-8**).

7. The dentures may be separated from the master casts, cleaned, and returned to the patient. A record may be made of mold and shade, or new selections may be made.

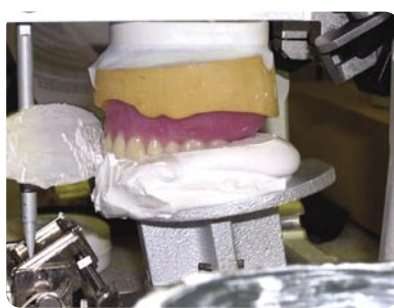
8. Tooth arrangement is facilitated by the use of the plaster index insofar as incisal edge placement, arch form, and

occlusal plane are considered. The case may be delegated to a technician at this point, and arrangement is completed for trial. The operator may decide to skip the trial denture appointment at his or her discretion, if there is confidence in the technique, esthetic parameters, phonetics, etc. A base shade must be selected as well, and the quality of

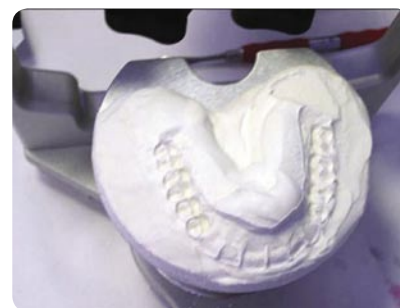
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**FIGURE 6.** Remount jig used on lower member of Hanau articulator (*remount record jig 85-0, Waterpik, Inc., Fort Collins, Colo.*).



**FIGURE 7.** Quick-set plaster is used to obtain an index of the existing upper denture. This will guide the dentist or the technician in tooth arrangement.



**FIGURE 8.** Plaster index used to capture incisal edge position, arch form, and occlusal plane (Step 6), using Mounting Stone.

## TECHNIQUE, CONTINUED FROM 352

postdam transmitted to the technician or carved into the master cast by the clinician.

9. The dentures are processed, inserted and delivered as usual.

The limitations of this technique are acknowledged. Without a trial denture appointment, there is no possibility of patient approval of the arrangement. It is suggested that whenever possible a posterior/anterior try-in be made, with vigorous patient participation in the matters of color, shape, and size of teeth, as well as overall approval of the arrangement. Moreover, if the existing dentures are underextended and not corrected (as with bordermolding techniques) in the final impressions, errors may compound and the finished dentures exhibit a collection of compromises. The operator is encouraged to evaluate, in particular, the retromylohyoid spaces and the posterior

zygomatic fossae as these important areas are frequently neglected with open-mouth impression techniques.

### Conclusion

The authors developed the simplified method for fabrication of complete dentures in response to the many patient complaints they received regarding transportation difficulties and multiple appointments. With this method, the existing dentures are used as custom trays as well as vehicles to carry the master casts to the articulator for mounting. The use of a plaster index expedites tooth arrangement. Following this technique, a new set of complete dentures may be fabricated in two or three appointments instead of the typical five sessions. An interested, trained chairside assistant may support the dentist by participating in

tooth selection, separating casts, trimming, indexing, and mounting the dentures with the facebow, cleaning the dentures, and talking with the patient about esthetic expectations, further streamlining the procedure. ■■■■

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4. Zarb GA, Bolender CL, Carlsson GE, Boucher's Prosthodontic Treatment for Edentulous Patients, 11th edition, p. 392-3, 1997.

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