Successful and Predictable Custom Complete Dentures

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Successful and Predictable Custom Complete Dentures

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Complete denture service must be designed to maintain the stomatognathic system in a functionally healthy and comfortable state. Patients who have lost all of their teeth suffer from a chronic condition called oral disability, according to the World Health Organization (WHO) criteria. One of the popular treatments for this chronic condition is removable complete dentures. Oral rehabilitation with complete dentures can have tremendous patient impact and social implications. Well-made removable complete dentures can restore a sense of normalcy and self-esteem.
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There are many acceptable techniques used in the construction of dentures in private practice, and the complaint we hear from practicing dentists is, “Denture treatment is very frustrating. We have to deal with so many adjustment visits!” and “We have stopped treating denture patients because we could not help them.”

However, because of the confusion that exists in treating completely edentulous patients, the purpose of this article is to present a successful and predictable technique for fabricating removable complete dentures. We have used and finessed this system throughout the years. It is worthy to mention that many practitioners want to learn how to make successful complete and/or presurgical dentures that serve as blueprint templates for the placement of dental implants. It is important to know where the denture teeth will be located prior to placement of implants.

FIRST APPOINTMENT
Know Your Patient

The first consultation appointment is a “get-acquainted appointment” with the patient as it is very important to establish a good rapport of kindness and understanding. The late L. D. Pankey stated that every clinician must “know your patients.” They have a dental problem and you want to help them. At this meeting, you need to determine and understand exactly what the patient’s wants and expectations are. Of course you want to provide your patient with an exceptional aesthetic and functional denture. However, there may be other issues beyond your control that by their nature make constructing a new denture difficult or impossible. That is why the thoughtful interview and thorough clinical extraoral and intraoral examination is so important. The use of the Dr. Massad Edentulous Exam (EdentExam [Unique Dental Apps; available from iTunes]) is recommended (Figure 1).

Before starting on the treatment, it is important to discuss your fair fee with your patient and establish solid financial arrangements. Your patients must understand that you may or may not work directly with their dental insurance company. Pankey said, “A fair fee can be defined as that fee which the patient is willing to pay with gratitude and appreciation and which will enable the dentist to render the best possible service.”

If the fee for services is accepted, signed informed consent—which covers the benefits, risks, and alternatives of complete denture treatment—is obtained. Financial and refund policies are clearly explained. A panoramic radiograph is taken and read.

Once the examination is completed, a printout summary of the conditions will be handed to the patient. In this visit, oral hygiene instructions will be given on how to clean the prostheses and how to remove denture adhesive from the mouth and the dentures (Figure 2).

We also make the following 2 requests from the patient prior to the next appointment: (1) to remove the dentures for 24 hours to get rested rebound oral tissues, the patient only using them to eat, and (2) to bring along a photo or a snapshot with a smile taken before natural teeth were lost, if possible.
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SECOND APPOINTMENT
Collection of Records

The following 4 objectives must be achieved in this visit:

1. The final impressions are made for the complete upper and lower dentures. During the procedures, it is advisable to educate the patient about the importance of the impressions and what they represent and why border movements are important. Multiple viscosities of vinyl polysiloxane (VPS) impression material in a low-temperature moldable edentulous tray to obtain a co-lamination among the layers of material will be used. The capture of an anatomically correct and detailed reproduction of all aspects of the edentulous arches is thereby enhanced (Figure 3).

2. Measurement is taken of the width of the nose with an Alamer (Ivoclar Vivadent) or a caliper (Figure 4) and 2 measurements: one of the upper lip at rest and the second of the lower lip at rest with a Massad Lip Ruler (Figure 5).

3. If any labial, buccal, or lingual overextensions are present on the impressions, it is advisable to mark the right extensions with a permanent marker. The maxillary vibrating line should be transferred to the impression using an indelible marker.

4. A laboratory prescription should be filled out with the previously collected data, along with the request to fabricate stone casts and 2 sets of record bases. One set is to be used to make a wax Esthetic Control Base (ECB) for the maxillary cast (Figure 6); a second set is to be used to place the Massad disposable tracers (Figure 7) and a neutral zone record for the mandibular cast (Figure 8).

THIRD APPOINTMENT
Collection of Records

The following 6 objectives must be achieved in this appointment:

1. Select a vertical dimension of occlusion (VDO) at a retruded contact jaw position using the Massad Jaw Recorders (Nobilium) or tracers' with one set of the record bases. If linear occlusion will be utilized, the recording is made at rest VDO. If lingualized occlusion is the occlusal scheme of choice, the rest VDO is closed 3.0 mm prior to making the tracers. Once recorded, a VPS material (Futar D Fast [Kettenbach LP] or Regisil Bite Registration Material [DENTSPLY Caulk]) is used to secure the bases together (Figure 7d).

2. The ECB is tried and adjusted for adequate upper lip support.
The anterior horizontal level of the wax is checked against the bi-pupil horizontal level for parallelism. The midline of the face, and the highest (laughing) lip line are marked. The buccal corridor is checked and sometimes adjusted (Figure 6).

3. The neutral zone record is heated in a water bath of 140°F then placed in the patient's mouth. The patient will be asked to sip and swallow hot water 4 to 5 times, then cold water is used before removing the record out of the mouth. This neutral zone record is a must when the lower ridge is very low to nonexisting. Use of the neutral zone method to identify and register the anatomy and physiology that impact prosthesis stability may result in improved prosthodontic therapy for patients (Figure 8).

4. The vibrating line is checked and the posterior border of the record base is adjusted as required.

5. The shade and mold of the prosthetic teeth are selected with the patient input. Patient involvement in tooth shade, mold selection, and tooth arrangement increases denture acceptance and results in fewer complaints and post-placements visits.3,10

6. A balanced articulation will be selected. Linguolized or linear occlusion will need to be determined and prescribed (Figures 9 and 10).11,12

During this appointment, it is advisable to explain and educate the patient about the importance of these records. In addition, the importance of bringing a spouse or close relative to the next "rehearsal" appointment is also discussed.

**FOURTH APPOINTMENT**
"Rehearsal" of the Wax Trial Dentures

The following 6 objectives must be achieved in this appointment:

1. The dentist checks first the wax trial dentures for aesthetics, VDO, plane of occlusion, buccal corridor, centric, and phonetics.13

2. Then it is checked by the patient standing in front of a big mirror; first at 9 feet, then at 6 feet, then at 3 feet. The patient will be asked for some feedback about the fit and regarding the look of these dentures in the mouth. Never allow the patient to use a hand mirror for viewing. Never let the patient take the trial denture home for family viewing.

3. Make an external impression along all the cameo surfaces of the trial denture using low viscosity VPS in low residual ridges (Figure 11).

4. Sometimes it is important for the patient to take ownership of this appointment by signing an approval paragraph placed in the patient chart.

5. It is prudent to ask the patient for his or her consent or refusal for a denture ID placement (Table).

6. If the VDO or centric occlusion is off, a new tracing can be made using the trial denture and the jaw recorders. A remount and reset is then achieved and the patient recalled for verification.

**FIFTH APPOINTMENT**
Integration of the Finished Complete Dentures

The following 4 objectives must be achieved in this appointment:

1. The dentures are fitted using a pressure indicating paste (Figure 12),
and sometimes a new centric record using the Massad tracers is made to refine the occlusion and balance the dentures (Figure 13). This step is very important for the patient's comfort with the new dentures. This step will not be necessary with linear occlusion since there are no inclined planes to adjust.

2. The patient is then given some grapes to chew to check for any sore spots before dismissing him or her. Adjustments are made to relieve any areas of discomfort.

3. Oral and written instructions are given as to how to care for the new dentures and what the patient can expect. A good practice-marketing tool is to give the patient a cleaning kit.

4. It is advisable for the office to keep the old dentures to shorten the adjustment period of the new dentures. Old dentures will be given back when the patient is comfortable and no further adjustments needed. Future adjustments will be made until the patient is comfortable. It normally takes several weeks to learn to eat efficiently with new dentures. It is unusual for the dentures to feel too big if the VDO has been restored. The musculature will adjust to the new height quickly.

**SIXTH APPOINTMENT**

*Adjustment Phase: Adaptation to the New Dentures*

The following 5 objectives must be achieved in this appointment:

1. The patient will be asked how he or she is getting along with the new dentures. A troubleshooting procedure will be initiated to solve any problems.15

2. Sometimes it is acceptable to say that some problems cannot be solved due to the limitations of the patient’s condition.

3. Complete a visual inspection of the soft oral tissues for any red lines or red ulcerations. Pressure-indicating paste (LeeMark Pressure Disclosing Paste or LeeMark Sorefinder [LeeMark Dental], or PIP or Mizzy [Keystone Dental]) could be used to relieve the sore spots and the border overextensions can be titrated with a light-body VPS (Panasil Light Bodied [Kettenbach] or AquasilUltra XLV Fast Set [DENTSPLY]) (Figure 14a).

4. Adjustments will be made (Figure 14b) until the patient is comfortable and confident in wearing the new dentures. With this described technique, one or 2 adjustment visits suffice for the

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**Figure 12.** Pressure indicating paste to check the tissue fit of recently made dentures.

**Figure 13.** Tracers used to correct all procedure occlusal errors of the denture fabrication.

**Figure 14.** (a) Titrating steps with light VPS to check border overextensions and (b) adjusting.

**Figure 15.** Assessment form to be sent to patient after treatment is done.
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successful integration of dentures. For medically compromised patients whose muscle dysfunction cannot be corrected, it may require implant stabilization. This must be discussed at the beginning and at the end of treatment.

5. A denture assessment form (Figure 15) is to be mailed to the patient after 2 weeks of the completion of the denture treatment. This is an excellent form of feedback for the dental practice.

CLOSING COMMENTS

A summary of a predictable technique for the fabrication of removable complete dentures has been presented. This technique has been tested by many practitioners and has stood up through the years.

The details of the technique are described in the referenced articles, or you can view the technique videos at nobilium.com/clinical-products, joemassad.com/nobiliumproducts, or on youtube.com, search for Joseph Massad.

References

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POST EXAMINATION QUESTIONS

1. Well-made removable complete dentures, although proven to be helpful, very rarely restore a sense of normalcy and an acceptable self-esteem.
   a. True   b. False

2. During the first consultation appointment, a “get-acquainted” session with the patient is very important to establish good rapport of kindness and understanding.
   a. True   b. False

3. During the clinical procedures, it is advisable to educate the patient about the importance of the impressions and what they represent and why border movements are important.
   a. True   b. False

4. A neutral zone record is a must when the lower ridge is very low to nonexisting.
   a. True   b. False

5. Sometimes, it is important for the patient to take ownership of this appointment by signing an approval paragraph placed in the patient chart.
   a. True   b. False

6. It is never advisable for the office to keep the old dentures to shorten the adjustment period of the new dentures.
   a. True   b. False

7. It is never wise to say that some problems cannot be solved due to the limitations of the patient condition.
   a. True   b. False

8. A denture assessment form can be used to gain some good feedback for the dental practice.
   a. True   b. False
SUCCESSFUL AND PREDICTABLE CUSTOM COMPLETE DENTURES

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