DEPARTMENT OF RESTORATIVE DENTISTRY

COMPLETE DENTURE PROSTHODONTICS PHILOSOPHY

1. **Initial appointment** must include intraoral, head and neck examination, including thorough oral cancer screening. All findings will be entered into AxiUm electronic patient database. In addition to standard entries used for restorative dentistry, these will also include the edentulous ridge evaluation form and the prosthetic history form, following the checklist of the Classification of Complete Edentulism (Prosthodontic Diagnostic Index - PDI). All the forms must be approved (and swiped) by the supervising instructor.

If the patient has an existing complete denture, they are evaluated for their retention, stability, esthetics, vertical dimension of occlusion, centric occlusion, and patient satisfaction.

**NOTE:** During the initial appointment all edentulous patients must be advised about the benefits of having two implants placed in the mandibular arch after the fabrication of their maxillary and mandibular dentures. All completely edentulous patients must have an implant screening appointment in the pre-doctoral implant clinic – room 311 (Mon, Wed, Thurs, Fri). Scheduling is done using Axium.

2. **Diagnostic impressions** are made with edentulous stock impression trays using alginate impression material. If necessary, the trays can be physically modified. Preliminary impressions must be overextended and include all the supporting tissues and periphery.

3. **Preliminary casts** will be poured in dental stone and properly trimmed. If evaluation for possible pre-prosthetic surgery is planned, mounting diagnostic casts (as part of a diagnostic procedure) is mandatory. The diagnostic casts will be mounted on a semi-adjustable articulator (Hanau) using record bases with wax rims after registering the proper vertical and horizontal maxillo-mandibular relationships (see below). If pre-prosthetic surgery is indicated, diagnostic casts have to be duplicated and then only the duplicates modified to the desired morphology. The modified duplicate cast is then used to fabricate a clear surgical guide. The latter is used as a guide at the time of the surgery to achieve the desired outcome.

4. **TRIAD custom impression trays** are prepared for the selective pressure final impression technique. A wax spacer (one sheet of baseplate wax) must cover secondary bearing and relief areas including the:

   a. anterior residual alveolar ridge including rugae area and palatal suture (maxillary cast);
   b. residual alveolar ridge with exception of buccal shelf area (mandibular cast).

The wax spacer must extend 2mm short of the outline of the custom tray. The custom tray is extended 2mm short of the depth of the vestibule or to the border between attached and unattached mucosa, to the vibrating line (maxillary tray) and must cover all of the supporting oral tissues (including retromolar pads).
5. **Border molding** is performed sequentially by quadrants, using green stick compound (Kerr, working temp. 123 degrees) with the wax spacer “in place.” Border molding can be achieved actively (by physiologic movements of the patient's limiting oral structures) and/or by manual manipulation of the patient's limiting oral structures. If necessary, the thickness of the border-molded labial denture border is adjusted to approximately 2-3mm. Border molding is accomplished to replace only missing soft and hard tissues.

6. **Final impressions** are made using PVS impression material (light body) after the wax spacer is removed. A relief hole in the maxillary custom tray is made with a round bur No. 8 in the area of the palatal rugae along the palatal suture.

7. **Master casts** are poured in Micro-stone and trimmed. A 4mm land area is necessary with its contour following the outline of the vestibular depth. Each master cast will have a 1.5cm thick base at its thinnest point. The bases of master casts must not be either thinner or thicker. Master casts are indexed by cutting three notches into their bases without undercuts. Prior to making wax rims, master casts must be evaluated by the student’s instructor or Managing partner.

8. **TRIAD record bases with wax rims** are fabricated using master casts with minimal blockout of the tissue undercuts in order to maximize their retention and stability. Wax rims are to conform to the alveolar arch form that the patient had before the natural teeth were extracted and the patient's residual alveolar ridge has resorbed. Wax rim’s buccolingual and antero-posterior positions must be related to the anatomical landmarks identified on the master casts (e.g., incisal papilla, hamular notches, retromolar pad). Preliminary and arbitrarily, the height of the anterior part of the wax rim is measured from the bottom of the labial vestibule to the top of the occlusal rim (maxillary - 22mm; mandibular -18mm; total 40-42mm). Posteriorly, the mandibular wax rim extends up to the 2/3 of the retromolar pad. The occlusal surface of the wax rim is parallel to the base of the master cast and is approximately 3-4mm wide in the anterior and 4-6mm wide in the posterior region.

9. **Orientation of the plane of occlusion** is clinically achieved by modification of the maxillary wax rim using extra-oral landmarks (inter-pupillary line for the frontal orientation, and ala-tragus line for the antero-posterior orientation). Height of the plane of occlusion is determined by using phonetics (maxillary wax rim) or extra-oral references such as the position of the patient's corner of the mouth and/or 2/3 of the height of the retromolar pad (mandibular wax rim). The mandibular wax rim is modified accordingly to conform to the designated plane of occlusion at the proper vertical dimension of occlusion (see below).

10. **Vertical dimension of occlusion** is established by using both the patient's physiologic rest position as a reference position. There should be 2-5mm of interocclusal space between rest and the occlusal vertical dimension of occlusion (as measured between the opposing maxillary and mandibular wax rims - premolar area). In addition, phonetics must also be used. The closest speaking space during the production of silibant sounds must be 1-2mm (as measured between the edge of the the wax rims in the area of the mandibular incisal edges and the lingual of the maxillary incisors).
11. **Transfer of the maxillo-mandibular relationship** from the patient to the articulator is achieved with the use of an average value face-bow and bite registration material, such as Alu-wax or polyvinyl siloxane.

12. To register **vertical and horizontal maxillo-mandibular relationships**, wax rims are prepared as follows: the maxillary wax rim receives 2 occlusal notches (each 2mm deep), while the occlusal surface of the mandibular wax rim is reduced 2mm in bilateral posterior quadrants (in the areas from the second premolar to the first molar). The horizontal maxillo-mandibular relationship is established using a centric relation record as a reference mandibular position. For registration of centric relation, the registration material is positioned between the two wax rims in bilateral posterior quadrants only. The Aluwax has to be soft and the maxillo-mandibular relationships registered at the pre-determined vertical dimension of occlusion. The maxillo-mandibular relationship record must be verified at this appointment and also at the next clinical appointment to ensure its accuracy.

13. **Selection of anterior tooth mould and tooth shade** is achieved by using an appropriate mould and shade guide. The patient should be actively engaged in this process.

14. **Selection of posterior tooth mould, and type of occlusion and articulation** depends on the clinical status of the patient. 0 degree teeth (monoline, rational) are set in monoplane occlusion and non-balanced articulation. 30 degree teeth (Pilkington-Turner) are set in anatomic occlusion and bilateral balanced articulation. Combination of 33 degree maxillary teeth (anatoline, functional) and 0 degree mandibular teeth (monoline, rational) are set in lingualized occlusion and bilateral balanced articulation.

Irrespective of the mould, posterior mandibular teeth are set in such a way that the position of their respective central grooves coincide with the line connecting a point on the crest of the mandibular ridge in the premolar area (anteriorly) and the bucco-lingual midpoint of the retromolar pad (posteriorly).

15. **Esthetic try-in** of the trial denture consists of evaluation of esthetics, phonetics and occlusion of the anterior teeth. If any modification of the set-up is required, it is performed chairside, before sending the case to the laboratory for the posterior tooth set-up. The maxillo-mandibular relationship must be verified at this appointment to ensure the accuracy of the articulated casts. New registrations and re-articulation of the mandibular cast is indicated if the original mounting is inaccurate. Any new articulation must be verified.

16. **Final wax try-in** of the trial denture is achieved by evaluation of esthetics, phonetics, vertical dimension of occlusion, and repeated verification of the maxillomandibular relationship (occlusion, articulation). In order to provide the maxillary denture posterior palatal seal, the maxillary master cast is physically altered by removing the stone from its tissue-side surface. The following areas of the maxillary cast are modified: hamular notch areas (1mm wide and 1mm deep), horizontal plate of maxillary bone area (4 - 6mm wide and 1.5mm deep) and midpalatal suture area (2 - 3mm wide and 1mm deep). This is accomplished before the maxillary trial denture is sealed to the master cast.

Both the instructor’s and patient’s approval of the trial dentures are necessary prior to sending them to the laboratory for processing by signing “Denture Acceptance Form.”
17. Before the maxillary cast with wax try-in dentures is separated from its respective mounting assembly, the occlusal surfaces of the maxillary trial denture teeth are indexed using plaster No.2. **The occlusal index** allows the maxillary cast to be mounted to the articulator in the same relationship, if a clinical remount is necessary (see below).

The laboratory prescription is written using the AxiUm electronic patient database.

18. During the complete denture delivery session, adjustments of the tissue side of the denture and its borders are performed using Pressure Indicating paste (PIP). In case of a significant occlusal discrepancy, **a clinical remount** is performed by mounting the maxillary denture first using the occlusal index. If the latter is not available, face-bow transfer of the maxillary denture is recommended. Alluwax is used as a registration material of choice to register centric relation for the purpose of mounting the mandibular denture. The patient receives **home care instructions** and is scheduled for a **24 hour recall** visit.

19. **Following two recall adjustment appointments**, if no further adjustments are needed as indicated by, but not limited to the following list, the patient is instructed to contact his/her student if further adjustment is needed.
   a. Resolution of soft tissue irritation
   b. Correction of occlusal discrepancies
   c. Proper denture border length and thickness
   d. Patient satisfaction with comfort, function, and esthetics
   e. Other case-specific issues

20. The importance of considering two implants for the mandibular arch must again be reviewed with the patient following completion of denture therapy by the student and clinical faculty. The patient should be encouraged to proceed with implant therapy. Patients previously approved for implant therapy during the diagnostic phase and desiring implant supported care should be referred to proceed with detailed evaluation, assessment, and care. He/she is referred to the Rm 311 (Mon, Wed, Thu, Fri). Scheduling is done using Axium.

21. The student is to confirm a 6 month **recall schedule** with the patient.

**Critical Criteria for Complete Denture Cases**

A. The students must work with the same instructor during all stages of the complete denture patient care.

B. Initial examination procedures as well as all recall appointments are to include intra/extraoral cancer screenings.

C. Whenever the optimal or alternative treatment plan includes complete dentures, the patient has to be informed about the benefits and option of receiving at least two mandibular dental implants. The patient must be referred for an implant consultation.
D. Preliminary and final impressions must include all the supporting tissues, including, but not limited to:
   1. All vestibular extensions and frena;
   2. Tuberosities, hamular notches, posterior palatal seal;
   3. Retromolar pads and buccal shelves.

E. Prior to making wax rims, master casts must be evaluated by the student’s instructor or Managing partner. Master casts will be mounted on the articulator using facebow transfer and centric relation record.

Text reference:

Zarb, GA, Bolender, CL; Prosthodontic Treatment For Edentulous Patients Complete Dentures and Implant-Supported Prostheses 12th Ed., CV Mosby Co., St. Louis, 2004