

PROSTHODONTICS

Lec: 3

المرحلة الرابعة

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Occlusal relationship for RPD:

The fourth phase in the treatment of patients with removable partial dentures is the establishment of a functional and harmonious occlusion. The occlusal harmony between the partial dentures and the remaining natural teeth is a major factor in the preservation of the health of their surrounding structures.

The establishment of the satisfactory occlusion for the partial denture patient should include the following:

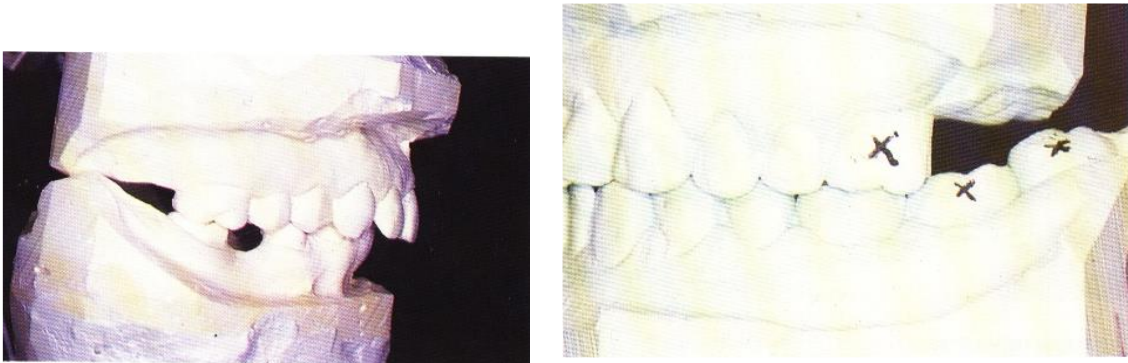
- 1- An analysis of the existing occlusion.
- 2- The correction of the existing occlusal disharmony.
- 3- The recording of the centric relation or adjusted centric relation.
- 4- The recording of eccentric jaw relation for functional eccentric occlusion.
- 5- The correction of occlusal discrepancies created in processing the denture.

Methods for Establishing Occlusal Relationships:

The recording of occlusal relationship for the partially edentulous arch may vary from the simple opposition of opposing casts by occluding sufficient remaining natural teeth to the recording of jaw relations in the same manner as for a completely edentulous patient.

1- Direct opposition of casts:

This is used when there are sufficient teeth remaining in contact to make the existing jaw relationship obvious and when only a few teeth are to be replaced on short denture bases; in this method opposing casts may be occluded by hand. The occluded casts are held in position with wire nails attached with sticky wax to the bases of the casts until they are securely mounted on the articulator, (see figure-1-).



(Figure-1-)

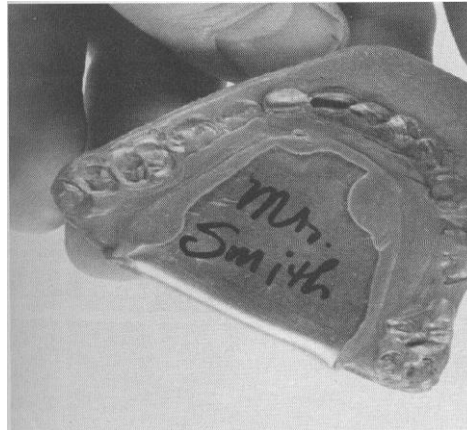
2- Inter-occlusal record with posterior teeth remaining:

This second method is a modification of the first one, is used when sufficient teeth remain to support the partial denture (kennady class III) but the relation of opposing teeth does not permit the according of casts by hand, see (figure-2-).



(Figure-2-)

In such situation jaw relations must be established as for fixed restorations using some type of interocclusal record. The least accurate is the interocclusal wax record, see (figure-3-).

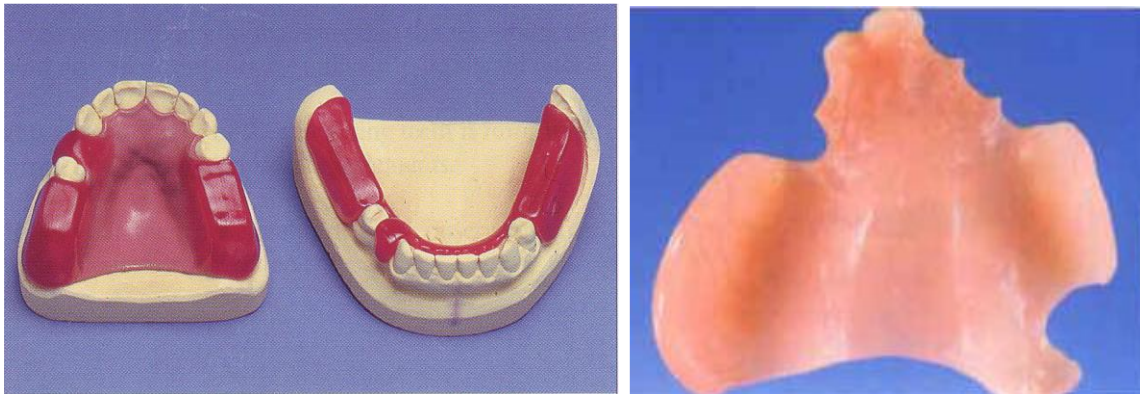


(Figure-3-)

A definite procedure for making interocclusal wax record: a uniformly softened, reinforced wafer of impression wax is placed between the teeth and the patient is guided to close in centric relation. Correct closure should have been rehearsed before placement of the wax so that the patient will not hesitate or deviate in closing. The wax is removed and chilled immediately in room temperature water and should be replaced again to correct the distortion from chilling, all excess wax is removed with a sharp knife; all wax contacting mucosal surface should be trimmed free of contact, the wax record is then corrected with an impression paste that is hard enough, first the opposing teeth and patient's lips and dentist fingers are lightly coated with petroleum jelly, the impression paste is then mixed and applied to both sides of the metal reinforced wax record, it is quickly placed and the patient is assisted with closing guided by the previous wax record. The corrected wax record is removed and inspected, any excess is removed.

3- Occlusal relation using occlusion rims on record bases:

A third method is used when one or more distal extension areas present, when a tooth bounded edentulous space is large, or when opposing teeth do not meet. In these instances occlusion rims on accurate jaw relation record bases must be used, see (figure-4-A). Accurate bases are used to help support the occlusal relationship, see (figure-4-B). Shellac bases may be adapted to the casts and then corrected with eugenole paste. Record bases also may be made entirely of auto polymerizing resin. Those materials used in dough form lack sufficient accuracy for this purpose unless they are corrected by relining.



A

(Figure-4-)

B

Methods for Recording Centric Relation on Record Bases:

There are many ways by which centric relation may be recorded when record bases are used the least accurate is the use of softened wax occlusion rims. Modeling plastic occlusion rims may be uniformly softened by flaming and tempering, resulting in a generally acceptable occlusal record, this method is time proved and accurate, when wax occlusion rims are used they should be reduced in height until just out of occlusion, see (figure-5-A).



A

(Figure-5-)



B

A single stop is then added to maintain its terminal position while a jaw relation record is made in some uniformly soft material which sets to a hard state like quick-setting impression plaster, bite registration paste or auto polymerizing resin may be used, with any of these materials opposing teeth must be lubricated to facilitate easy separation, see (figure-5-B). Whatever the recording medium it must permit normal closure into centric relation without resistance and must be transferable with accuracy to the casts for mounting purposes. Some mention must be made of the ridge on which the record bases are formed, if the prosthesis is to be tooth supported or a distal extension base is to be made on the anatomic ridge form, the bases will be made to fit that form of the residual ridge, but if a distal extension basis to be supported by the functional form of the residual ridge it is necessary that the recording of jaw relations be deferred until the master cast has been corrected to that functional form. Record bases must be as nearly identical to those of the finished prosthesis. Jaw relation record bases are useless unless they are made on the same cast to which the denture will be processed or duplicate.

4- Jaw relation records made entirely on occlusion rims

The forth method is used when no occusal contact exists between the remaining natural teeth such as when an opposing maxillary complete denture is to be made concurrently with a mandibular partial denature, see(figure-6-A).



A

(Figure-6-)



B

It may also be used in those rare situations in which the few remaining teeth do not occlude and will not influence eccentric jaw movements, jaw relation records are made entirely on occlusion rims when either arch has only anterior teeth present, see (figure-6-B). In any of these situations jaw relation records are made entirely on occlusion rims. The occlusion rims must be supported by accurate jaw relation record bases. Here the choice of method for recording jaw relations is much the same as that for complete dentures. As with complete denture fabrication, the use of a face bow, the choice of articulator, the choice of method for recording jaw relations and the use of eccentric positional records are optional based on the training ability and desires of the individual dentist.

5- Establishing occlusion by recording of occlusal pathways:

This fifth method involves the registration of the occlusal relation by occlusal pathways and the use of an occluding template rather than a cast of the opposing arch. A functional occlusal record is used and the teeth that are set are modified to accept every recorded eccentric jaw movement. This is different from a static jaw relation record when it's used with or without eccentric articulatory movement, where the artificial teeth are arranged to occlude according to a specific concept of occlusion.

Establishing jaw relation for a mandibular RPD opposing a maxillary complete Denture:-

The maxillary denture may already be present or it may be made concurrently with the opposing partial denture, the establishment of jaw relations in this situation may be accomplished by one of several previously outlined methods.

If an existing maxillary complete denture is satisfactory and the occlusal plane is oriented to an acceptable anatomic, functional and esthetic position then the complete denture need not be replaced and the opposing arch is treated as an intact arch as though natural teeth were present. A face-bow transfer is made of that arch and the cast mounted on the articulator in the usual manner. Maxilla- mandibular relation may be recorded on accurate record bases attached to the mandibular RPD framework using one of the recording mediums previously outlined. Centric relation is thus recorded and transferred to the articulator. Eccentric records can then be made to program the articulator. Too often one sees a maxillary denture with posterior teeth arranged close to the residual ridge without regard for the interarch

relationship and with an occlusal plane that is too low. Usually, however, a new maxillary denture must be made concurrently with the mandibular RPD, and jaw relations may be established in one of two ways:

1- If the mandibular RPD will be tooth supported, or if there is lower fixed PD, the mandibular arch is completely restored first and jaw relations are established as they would be to a full complement of opposing teeth. Thus the maxillary C.D. is made to occlude with an intact arch.

2- The mandibular RPD may have one or more distal extension bases. The situation then requires that the occlusion be established on both dentures simultaneously.

After making final impressions, which include the corrected mandibular cast impression to establish optimal support for the basis of the P.D. (the denture framework must be made previously), the maxillary occlusion rim is contoured, occlusal vertical relation with the remaining lower teeth is established, and a face bow transfer of the maxillary arch is made. The maxilla-mandibular relations may be recorded by anyone of the several methods previously outlined and the articulator mounting completed. Occlusion may be established as for complete dentures, taking care to establish a favorable tooth - to- ridge relationship in both arches, an optimum occlusal plane and cuspal harmony between all occluding teeth. After try-in both dentures may be processed concurrently and remounted for occlusal correction, or the RPD may be processed first. After the dentures are completed and remounted, the teeth- still in wax on the complete denture- are adjusted to any discrepancies occurring.