

Prosthodontics Occlusal Correction

Artificial teeth move about to a minor degree during festooning and while the wax denture base is being converted in to resin.

This tooth movement is due primarily to dimensional changes in the wax denture base, in the investing materials, and in the resin denture base during curing. Occlusal discrepancies caused by these dimensional changes ordinarily are removed before the dentures are polished.

Occlusal harmony in complete denture is necessary so that the denture will be:

- 1- comfortable and functions efficiently.
- 2- preserve the supporting structures

Causes of errors in occlusion:

- 1) Inaccurate maxillo-mandibular relation record by the dentist.
- 2) Errors in the transfer of maxillo-mandibular relation.
- 3) ill-fitting record bases.
- 4) Incorrect arrangement of the posterior teeth.
- 5) Failure to close the flask completely during processing.
- 6) Warpage of the dentures by over-heating them during polishing.
- 7) Changes in the denture base material (dimensional changes of the acrylic dough).

Changes in occlusion can be corrected before removal of the dentures from the casts after flasking. The casts are placed back onto the articulator and the occlusion is corrected by the method called selective grinding. In this case new inter-occlusal records of centric jaw relation should be made at the time of insertion, then mounting of the casts with the dentures is done on the articulator to do selective grinding.

Selective grinding:

There are 2 types of selective grinding:

- 1) Intra-oral (inside the mouth).
- 2) Extra-oral (on the articulator in the laboratory).

Articulating paper and wax-sheet may be used to detect the premature contacts, although it is preferable to use wax-sheet because premature contact will cause the cusps to penetrate through the wax indicating heavy contact is present.

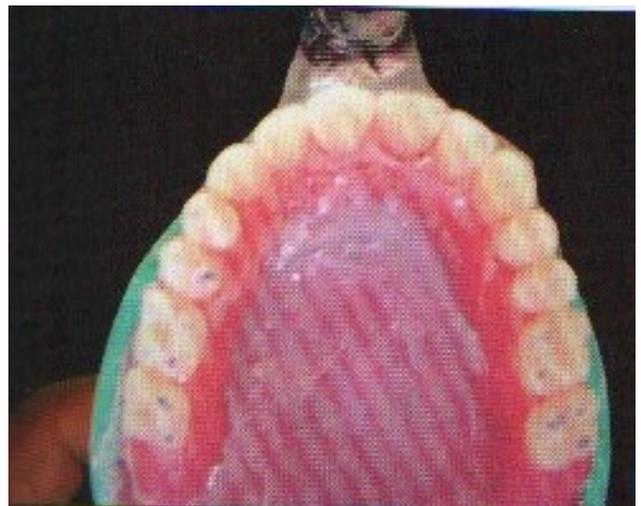
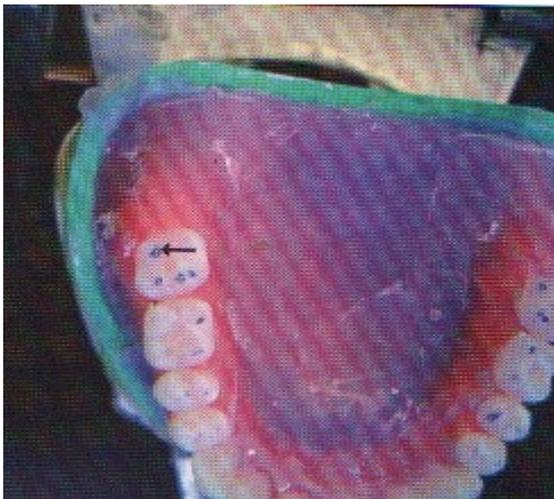
The articulating paper is not preferred over the wax sheet for the following reasons:

- (1) The presence of saliva will complicate the use of articulating paper intra-orally.
- (2) It is difficult to place the articulating paper on both sides of the arch at the same time.
- (3) Finally the articulating paper may colour even the teeth that are not in occlusion.

Extra-oral selective grinding is done in the laboratory either (1) after deflasking before polishing of the dentures, where remounting of the casts with dentures is done with plasters on the articulator and then the occlusion is corrected, or extra-oral selective grinding is done (2) after polishing and in the insertion stage when there are changes in occlusion which are difficult to be corrected by intra-oral selective grinding, in which a new record of centric jaw relation is taken from the patient, after that the dentures are remounted on the articulator to perform selective grinding in the laboratory.

Extra-oral selective grinding is more preferable than intra-oral selective grinding for the following reasons:

- 1) Presence of compressible tissue under the denture, that may move with the denture especially in flabby ridge and very resorbed ridges, while in extra-oral selective grinding the dentures are on hard bases (casts).
- 2) The bad psychological impact on the patient as he will see his teeth ground in front of him in intra-oral selective grinding.
- 3) Lateral excursion (right and left) and protrusive movements are difficult.



Occlusal errors in centric occlusion

In selective grinding the "Bull" rule should be considered which means that only the nonfunctional cusps should be modified (buccal cusps of maxillary denture and lingual cusps of mandibular denture).

If the functional cusps are indicated for modification, the opposing fossae should be modified or the opposing cusp incline is ground, not the cusp height.

1) When any pair of opposing teeth are too long and prevent the other teeth to be in contact, The correction is deepen the fossae.

2) When maxillary and mandibular posterior teeth are nearly cusp to cusp, This error is corrected by grinding the inclines of the cusps in such away to move upper cusps buccally and lower cusps lingually, in this process the central fossae are made broader, the lingual cusp of maxillary tooth is made more narrow when it is ground from the lingual side and the buccal cusp of the mandibular tooth is made more narrow when it is ground from the buccal side (the cusps are not shortened).

3) When maxillary teeth are too far buccally in relation to mandibular teeth, the lingual cusp of maxillary tooth is made more narrow by broadening of the central fossa, and the buccal cusp of the mandibular tooth is moved buccally by broadening of the central fossa (the cusps are not shortened).

If there are gross changes in occlusion which may be unilateral occlusion this require repeating one of the dentures.

In non-anatomic teeth gross premature contacts are removed from the occlusal surfaces and then abrasive paste is used to equalize the contacts on the paste teeth.

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