

**Altered cast technique, Jaw
relation registration, Occlusion and
setting of artificial teeth**

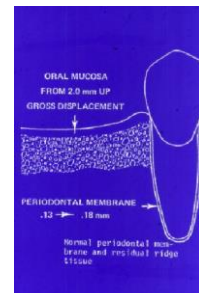
April, 29, 2015



Altered Cast Technique

Corrected (Modified) Cast Technique

- The difference in compressibility between the denture bearing mucosa and the periodontal ligament of the abutment teeth will cause the free-end saddle to sink under occlusal load and RPD to rotate about the support axis



The Purposes for altered cast technique

- Reduces the support differential between ridge and abutments by obtaining a compressive impression mimicking functional loading.
- Provides a more accurate relationship between abutments & ridge
- Improves load distribution and denture stability
- Corrects peripheral adaptation

Indications for altered cast technique

- Class I & II RPDs
- Framework most likely to be adjusted in the future (need for relining and rebasing)
- Extensive Class III & IV cases
- Tooth mobility + compressible mucosa
- Less necessary in maxilla

Technique

- Ensure well-fitting framework on the cast
- Place relief over ridge (1 mm wax relief)
- A custom acrylic impression tray is fabricated over the framework



- Check seating of the framework on the cast. If not seated, remove, repeat tray construction (rests fully seated, tissue stop contacts cast, metal adjacent abutment contacts cast, no resistance as framework seated).



- Check peripheries of the tray (2-3 mm short of vestibular)
- No displacement when cheeks and lips are pulled or when the patient activates tongue
- Border moulding is undertaken to simulate final denture border



- Before making the impression, ensure tray is well retained by framework
- Remove wax spacer
- Coat tray with adhesive and wait for 10-15 minutes

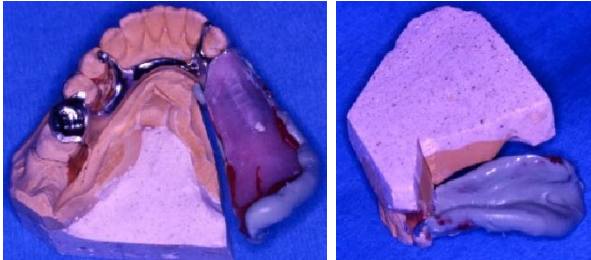


- Remove the impression and inspect it:
 - . Absence of voids
 - . Minimal show-through
 - . The impression must cover supporting tissues
 - . Framework is fully seated.
- Modify small errors or retake impression



Send to the laboratory. Residual ridge is sectioned from the original cast





- Ensure no contact between impression & cast
- Place retentive grooves in cast
- Sticky wax in place



- Box the impression ensuring water tight seal
- Seal retainer, major & minor connector borders
- Pour new ridge areas in different color stone



Jaw Relation Records

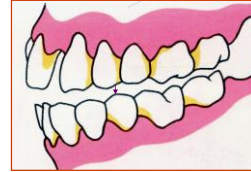
- Vertical Jaw Relations:
- Horizontal Jaw Relations:
- Face bow Registration.

Vertical Jaw Relations

Rest Vertical Dimension 'RVD'
 Occlusion Vertical Dimension 'OVD'
 Inter-occlusal Distance / Free way Space

Inter-occlusal Distance

In natural dentition it ranges from 2-4 mm in the premolar area - the Freeway Space.



CD vs. RPD

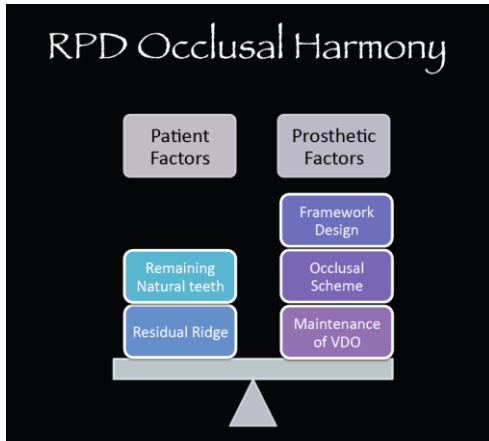
How about jaw relationships in RPD???

Complete Denture

- Occlusion is totally dependent on residual anatomy
- Malocclusion results in instability

Removable Partial Denture

- Occlusion is dependent on residual ridge structures and remain dental structure
- Malocclusion results in instability and torquing of abutment teeth



Stable occlusal contacts provided from the existing natural dentition

Stable occlusal contacts not provided from the existing natural dentition

Partially dentate jaw opposed by completely edentulous one

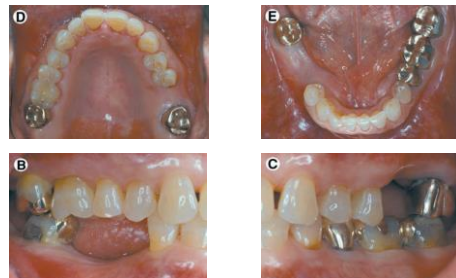
Three widely separated tripod points of occlusal contacts are necessary to relate the 2 casts accurately

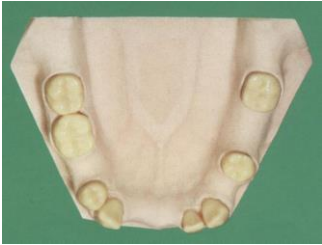
These contact points may be tooth to tooth or tooth to interocclusal recording material

A stable orientation of the opposing casts may exist if sufficient teeth remain and in these patients no interocclusal relation recording is necessary.

Vertical Jaw Relation

If stable occlusal contacts are provided by the remaining natural teeth, the existing VDO and CO relation should be recorded.





A wax occlusion rim is placed over the resin base, while considering the width and height dimensions of the natural missing teeth.



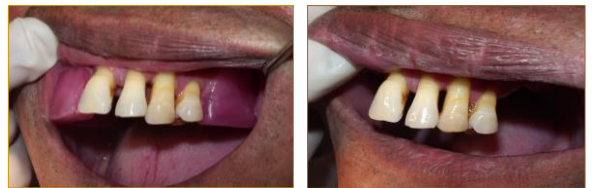
Interocclusal Records

- Most accurate method requires use of stabilized occlusal rims.
- Rims should be placed just out of contact.
- Occlusal registration can then be made in Wax, bite registration, or autopolymerizing resin.



Clinical Procedure:

1. The framework with the attached record block is first tried in the mouth for reconfirming the fit of framework.
2. The height of the wax occlusion rims are so adjusted intra-orally that 1mm of space exists between the opposing teeth & the rims.



Three widely separated tripod points of occlusal contacts are necessary to relate the 2 casts accurately

These contact points may be tooth to tooth or tooth to interocclusal recording material

A stable orientation of the opposing casts may exist if sufficient teeth remain and in these patients no interocclusal relation recording is necessary.

How about for a partial denture that is opposed by a complete denture???

For the patients whom one of the arch is edentulous or whom the opposing teeth do not provide stable occlusal contacts, OVD has to be measured as follows,
 $RVD - OVD = 3 - 4 \text{ mm}$



Objectives for an Occlusal Scheme

- ⦿ If a physiologic state exists, maintain maximum intercuspation.
- ⦿ Bilateral simultaneous contacts should be established in the restored occlusion.
- ⦿ Multiple points of posterior occlusal contact improve chewing efficiency & decrease the potential for wear
- ⦿ Do not alter existing occlusal scheme except to remove a pathologic process.

Objectives for an Occlusal Scheme

- ⦿ If lateral guidance is needed, strive for canine guidance.
 - Select if canines are present and sound
 - Helps to reduce lateral forces
 - Promotes a more vertical chewing cycle
 - Allows for greater selection of occlusal morphologies

Ivanhoe JR, Plummer KD. J Dent Clin N Am 48 (2004) 667-683

Objectives for an Occlusal Scheme

- ⦿ Establish group function or unilateral balanced occlusion if canines are missing or weak.
- ⦿ Do not permit Nonworking contacts on natural teeth unless they oppose a CD in balanced occlusion

Conclusions

- ⦿ No single occlusal scheme will work for every patient
- ⦿ Selection of an occlusal scheme is multifactorial
- ⦿ There is currently no evidence to support one occlusal scheme over another
- ⦿ Emphasis should be placed on protecting the natural dentition rather than correcting the edentulism