

Jaw relation registration in RPD

Why to Record the Jaw Relations ?

- To establish and maintain a harmonious relationship with all oral structures and to provide a masticatory apparatus that is efficient and esthetically acceptable.
- To ensure that all the effects of occlusal loading be distributed as evenly as possible to all supporting structures capable of receiving the force

* To best control the undesirable effects of rotational or torquing forces on the prosthesis.

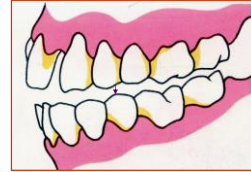
*To prevent any deflective contacts of the teeth during centric or eccentric closures as these can produce pathological changes in the supportive structures or in the neuromuscular mechanism that controls mandibular movement.

Jaw Relation Records

- * Vertical Jaw Relations:
 - Rest Vertical Dimension 'RVD'
 - Occlusion Vertical Dimension 'OVD'
- * Horizontal Jaw Relations:
 - Centric Relation
 - Centric Occlusion
 - Eccentric Relations
 - Protrusive relation
 - Lt & Rt Lateral relations
- * Face bow Registration.

Inter-occlusal Distance

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



Vertical Jaw Relations

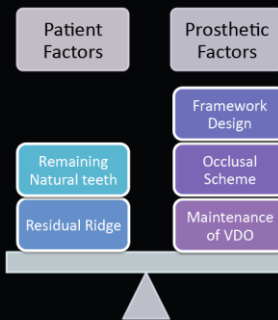
If stable occlusal contacts are provided by the remaining natural teeth, the existing OVD and CO relation should be recorded.



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,

$$\text{RVD} - \text{OVD} = 3 - 4 \text{ mm}$$

RPD Occlusal Harmony

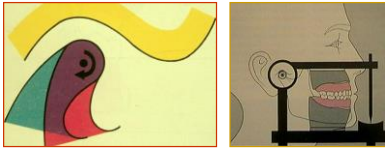


Horizontal Jaw Relation

Centric Relation

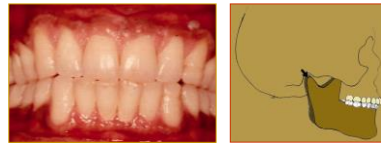
'the most retruded position of the mandible to maxilla at an established OVD'.

It is a bone to bone relation that is repeatable by the patient. It remains constant throughout life & during its recording cuspal relation of the teeth is not considered.



Centric Occlusion

'the relation of the mandible to maxilla in the maximum intercuspation of the teeth'. It is a tooth-tooth relation - a position of habitual closure.



Horizontal Jaw Relation

What to Record – C.R or C.O

In more than 90% of people, C.O is 0.1 - 2mm in front of the CR.



Horizontal Jaw Relation

What to Record – C.R or C.O

Centric Occlusion should be recorded whenever a patient requiring a partial denture has cusps on remaining natural teeth that can guide the mandible back to this position,



otherwise

C.R should be recorded, e.g., for distal extension RPD, or when the opposing arch is edentulous.



Interocclusal Records

- Most accurate method requires use of stabilized occlusal rims. After carefully verifying the fit and occlusion of the RPD framework intra-orally and after performing the altered cast procedure, an auto-polymerizing acrylic resin base is usually attached to the framework saddle areas. A base-plate wax base may also be formed. Rims should be placed just out of contact.

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



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.

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,
 $RVD - OVD = 3 - 4 \text{ mm}$



The recording medium (wax or ZnO paste) is then placed on the mandibular wax rims while V notches are cut in the upper rim - the patient is then guided in the desired C.O or C.R position.



The Face-bow

is an instrument used to record the spatial relationship of the maxilla to some anatomic reference (transverse horizontal axis) and then transfer this relationship to an articulator.



Why Use a Face-bow

To relate the maxillary cast to the condylar elements of the articulator at the same orientation that the maxillary teeth have to the mandibular condyles of the patient. As this record mounts the casts at the same angulations as the jaws are related in the mouth, the artificial teeth being placed on the cast can be visualized as they will actually look in the mouth. This way occlusal prematurities are avoided.

Basic Tenets of RPD Occlusion

- - Strive for “Occlusal Harmony”
- Examine the pre-treatment occlusion
- Design partial before considering occlusal schemes
 - Place clasps so they do not affect existing occlusion



Davies, SJ et. al. BDJ 2001, 191:9-491-502

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

- ◎ - 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