Methods of determining vertical dimension of occlusion

1) Pre-extraction records
   a) Willis gauge

   This device could be used to measure VDO before teeth extraction and then recorded in the patient record.
b) **Profile tracing:**
   done using lead wire adapted to the patient profile before extraction

c) **Face mask**
   clear acrylic resin mask could be made before extraction.

d) **Articulated casts**
   – Allow determining vertical dimension
   – Indicate the amount of vertical and horizontal overlap
e) *Profile photograph*

taken before teeth extractions. The distance between two fixed points is measured and then multiplied by factor.

f) *Radiograph*

patient’s lateral cephalometric radiograph may be helpful.
2) *Measurements of the former denture*

the vertical dimension of occlusion could be measure from previous dentures this measured could be correlated with the patient’s face observations.
3) **Power Point**

The use of power device (Boos Bimeter) to determine the vertical separation of the jaws at the maximum masticatory force.

4) **phonetics “Closest-speaking space”**

It is the relationship of the occlusal surfaces and incisal edges of the mandibular teeth to the maxillary teeth during function and rapid speech. This is done by asking the patient to repeat words started with letter “S” and evaluate space between occlusal rims.
5) Ridge Relationship

it is suggested that parallelism of both arches is an indication of the correct vertical height.
INADEQUATE INTEROCCLUSAL
REST SPACE RESULTS IN;

- clicking of the teeth
- facial distortion, tense strained appearance
- difficulty closing lips
- difficulty swallowing
- soreness and discomfort under the denture
- increased ridge resorption due to trauma

Inadequate Interoccusal Rest Space = Excessive VDO
EXCESSIVE INTEROCCLUSAL REST SPACE RESULTS IN;

- reduced interarch distance when the teeth are in occlusion
- overclosure is potentially damaging to the TMJ
- normal tongue space is limited
- facial distortion, chin is closer to nose, commissure of the lips turns down, lips loose their fullness
- muscles of facial expression loose their tonicity,
- face appears flabby
- angular cheilitis is sometimes attributed to overclosure
CLOSEST SPEAKING SPACE

- "s" sounds
- count from 60-70

- Measures vertical dimension when the mandible and muscles involved are in physiologic function of speech.
- The final test that we use to determine if the vertical dimension of occlusion that we have chosen is correct.
- Measure VDO of existing denture and compare.
**CENTRIC RECORDS**

**Centric Occlusion (CO):**
Definition: is the relation of opposing occlusal surfaces that provide maximum intercuspation.

**Centric Relation (CR):**
Definition: a maxillomandibular relationship in which the condyles articulate with the thinnest avascular portion of their respective discs with the complex in the anterior-superior position against the slopes of the articular eminences.

Centric occlusion with teeth present is a tooth-to-tooth relation, whereas centric relation, is a static position, is a bone to bone relation.
CENTRIC RECORDS

ISO Compound

1. **Functional** (Chew in)
2. **Graphic** (Intraoral or extraoral tracings)
3. **Static** (Interocclusal records)
   a. Waxes (i.e Alu-wax)
   b. Impression Compounds (ISO compound)
   c. ZOE paste

- Waxes are capable of making a record upon contact and the jaws can be separated at once.
- Compound and ZOE must be maintained in contact until the material is hard.
- Waxes are easily distorted and unless extreme care is exercised when the records are positioned, an error can occur.
- Compound & ZOE will break before they will distort.
The technique can be divided into 2 steps:

1. A tentative record using wax occlusion rims attached to accurate stable record bases.
2. Interocclusal check records with teeth arranged during the final try-in.

Alu-wax
CENTRIC RELATION RECORD

1. CR is a reference point in recording maxillomandibular relations. It is independent of tooth contact. It allows us to record the anterior-posterior position of the mandible.

2. It can be verified and repeated

3. It is a starting point for developing occlusion. For denture occlusion CR=CO.

4. It’s a functional position, although fleeting in nature.

*** CR should be recorded at the proper VDO ***
RECORDING CENTRIC RELATION

- Before making the final record check for interferences between the record bases
- Adjust record bases as necessary
CENTRIC RELATION RECORD

- Have patient practice closing gently in a retruded position before making the final record

Making CR records consists of two phases:

1. Getting the entire **mandible retruded** -Bimanual technique

2. Positioning the **condyle-disc assembly** in the **uppermost anterior position**.