Horizontal jaw relations

It is the relationship of mandible to maxilla in a horizontal plane (in anteroposterior and side to side (Lateral) direction).

It can be divided into two types:-

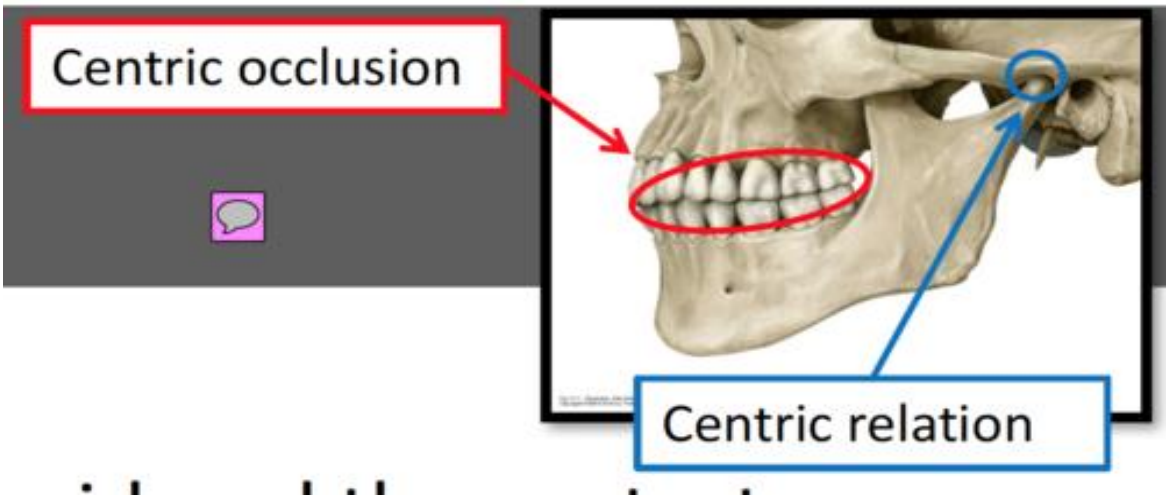
1- Centric relation

2- Eccentric relation which include:-

a- Protrusive relation

b- Lateral relation

1- Centric relation: the most **retruded relation** of the mandible to the maxillae when the condyles are in the most **posterior unstrained** position in the glenoid fossae from which lateral movement can be made, at any given degree of jaw separation. It is a bone to bone relation.



Centric occlusion: The occlusion of opposing teeth (Teeth contact position) when the mandible is in centric relation. (***it is tooth-to-tooth relationship dictated or ordered by bone to bone relationship***).

2- Eccentric relation any relation of the mandible to the maxilla other than centric relation.

A- Protrusive relation:-is the relation of the mandible to the maxillae when themandible is thrust forward

B- Right & left maxillo-mandibular relation:- are the relations of the mandibleto the maxillae when the mandible is moved either to the right or left side.

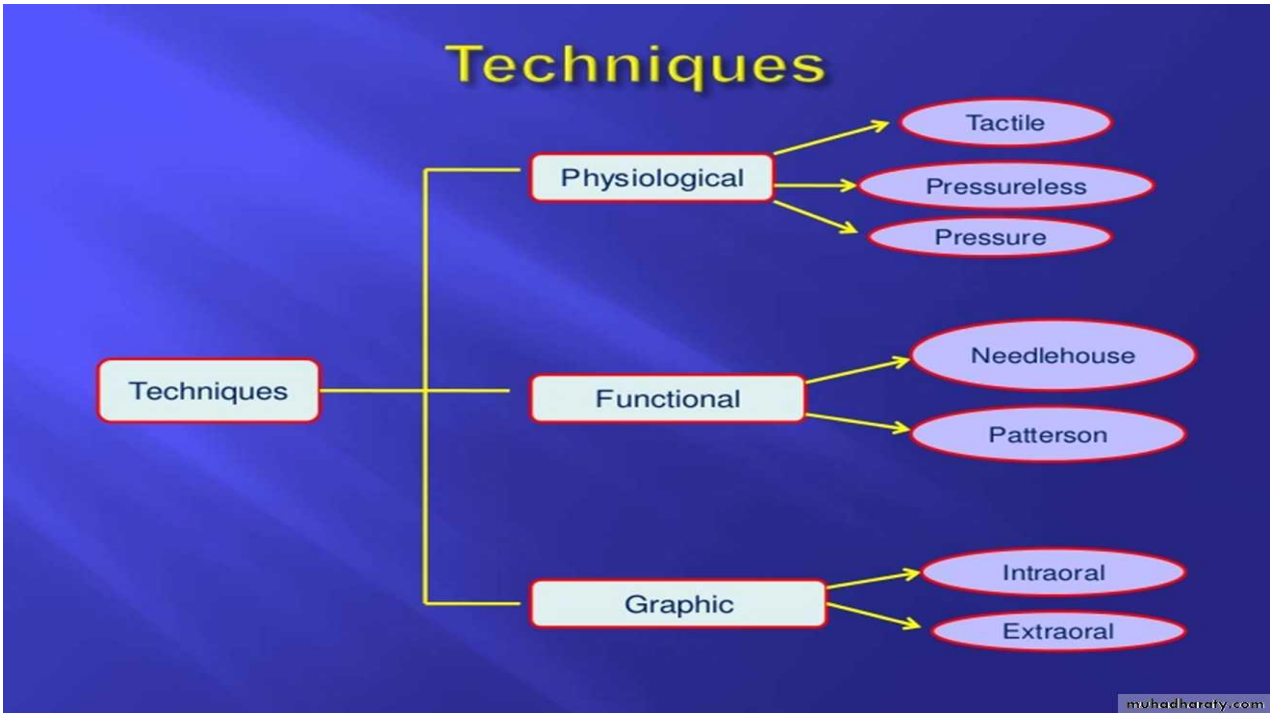
METHODS TO RECORD CENTRIC RELATION:

1- *FUNCTIONAL)* : Needlehouse and Patterson method.

2- *GRAPHIC*: Intra oral , Extra oral .

3- *PHYSIOLOGICAL*: tactile or inter occlusal check record method, pressureless method , pressure method.

***4- SWALLOWING* method.**

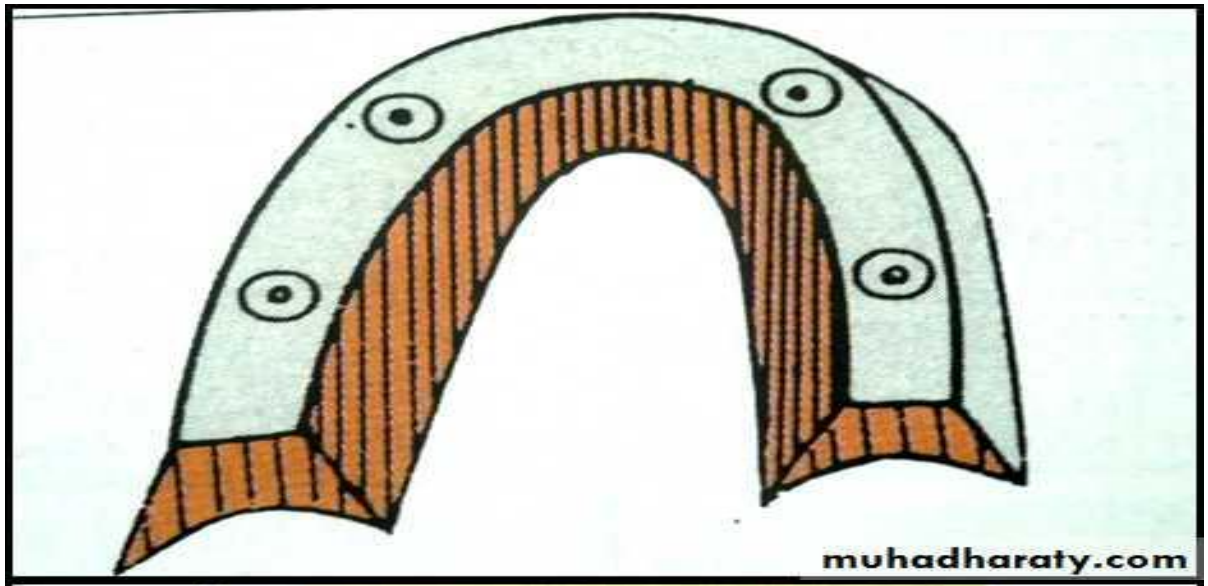


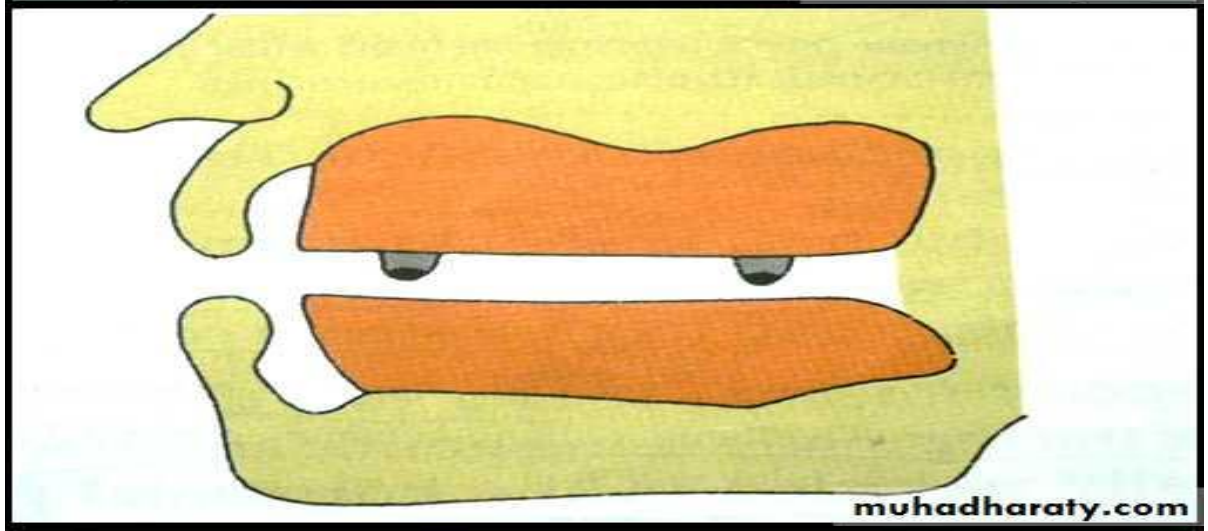
Functional method

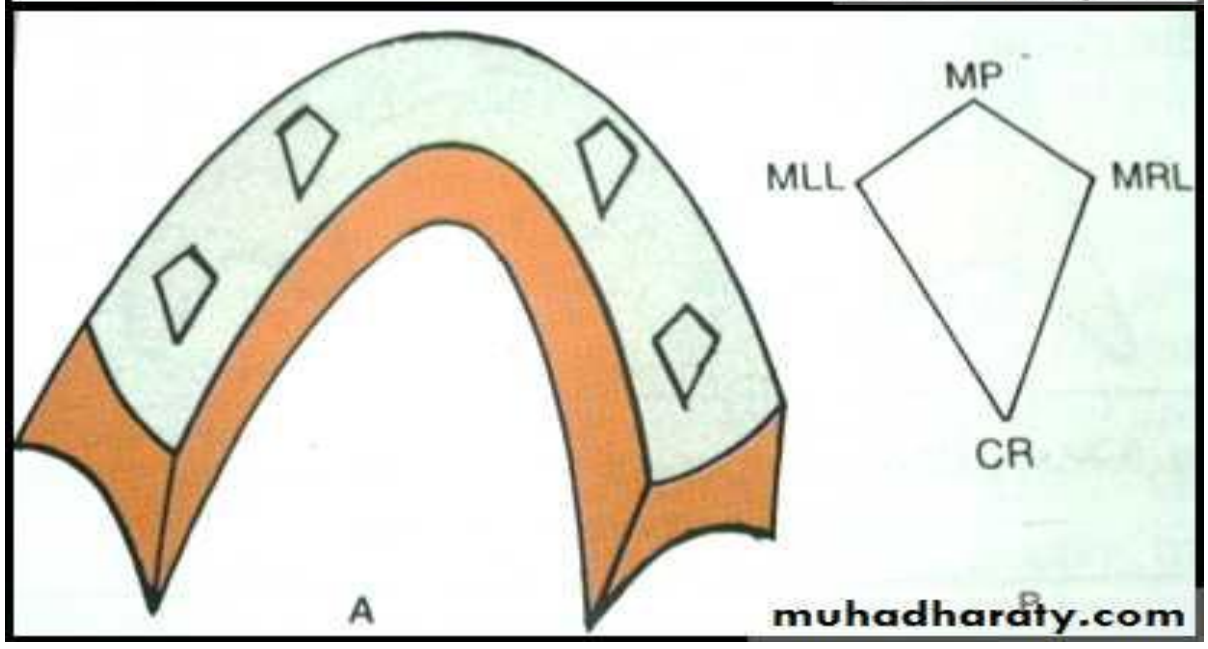
Method utilize the functional movements of jaws to record the centric relation. Patient asked to perform border movements such as protrusive and lateral excursion movement .

A- Needlehouse method

• In this method used impression **compound occlusion rims** with four metal placed in the **maxillary rim**. When the patient moves his mandible, the metal on the maxillary rim will create a marking on the mandibular rim, after all mandibular movements are made, and a diamond-shaped pattern is formed. The posterior most point of this diamond pattern indicates the centric jaw relation.


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Hints:

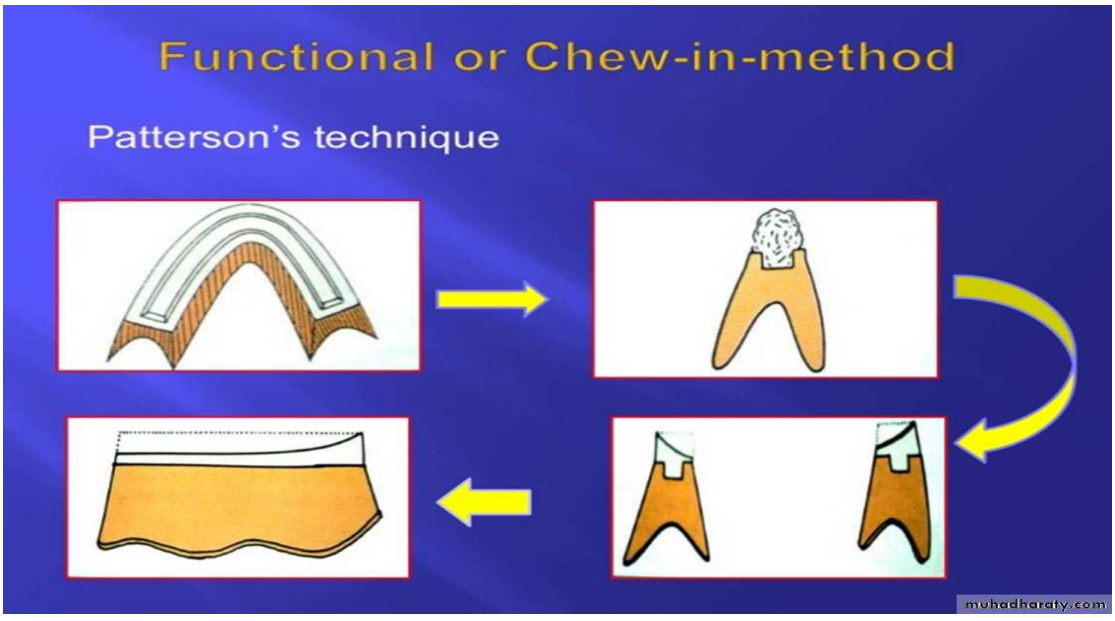
1 ***Maxillary rim made from impression compound with four metal inserted.***

2 ***Recording the mandibular movements.***

3 ***Diamond-shaped marking made on the mandibular rim. (MP maximum protrusion, MLL maximum left lateral , MRL maximum right lateral, CR centric relation).***

B- ***Patterson method*** ***(Chew – in method)***

- In this method used **wax occlusion rims**.
- A trench (channel) is made along the length of mandibular rim.
- A 1:1 mixture of pumice and dental plaster is loaded into the trench. When the patient moves his mandible, compensating curves on the mixture will produced, and the height of the mixture is also reduced.
- The patient is asked to continue these movements till a predetermined vertical dimension is obtained. Finally the patient is asked to retruded his jaw and the occlusal rims are fixed in this position with metal staples.



Hints:

1 ***Trench made in the mandibular rim.***

2 ***Mixture of pumice and dental plaster loaded on the trench.***

3 ***Mediolateral compensating curve generated on the mixture.***

4 ***Anteroposterior compensating curve generated on the mixture.***

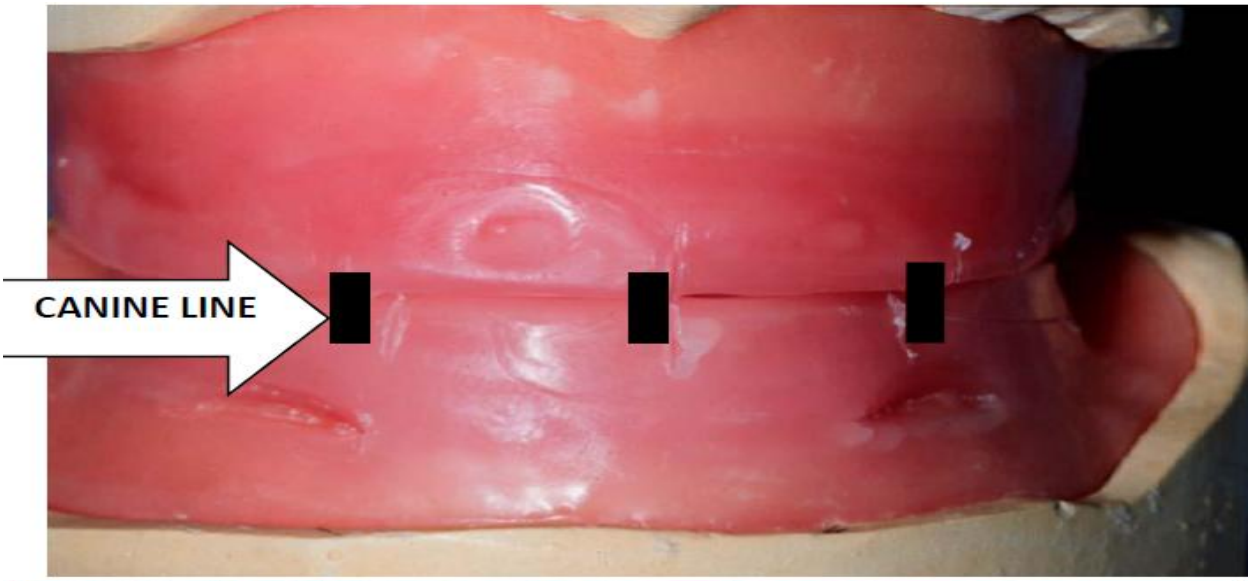
The disadvantages of functional methods involve lateral and anteroposterior displacement of the recording bases in relation to the supporting bone while the record is being made.

Physiological method :
Tactile or inter occlusal check record

In this method the centric relation is recorded by placing a record medium (zinc oxide eugenol, impression compound and wax) between the record bases when the jaws positioned at centric relation. The patient closes into the recording medium with the lower jaw in its most retruded unstrained position and stops the closure at predetermined vertical dimension. This method is simple, **It has advantage** of causing **minimal displacement of the recording bases in relation to the supporting bone**. It is essential in making an accurate record, the visual acuity and the sense of touch of the dentist also inter in making of centric relation record, this phase is developed with experience and it is difficult to teach to another individual.

PROCEDURE:-

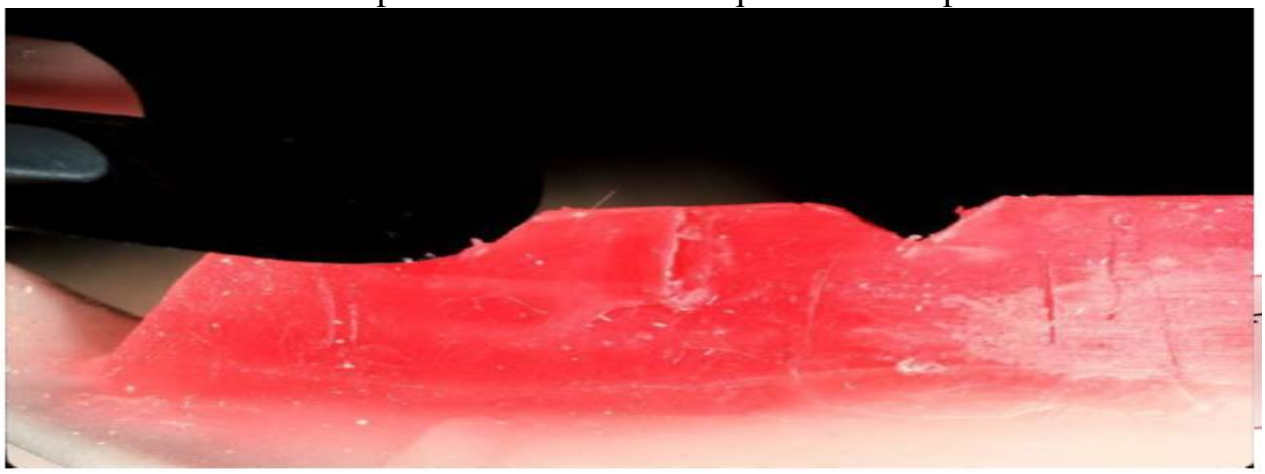
- Preparing Occlusion Rims
- Place 3 widely separated lines between the rims in the centric position (mid line & canine eminences)



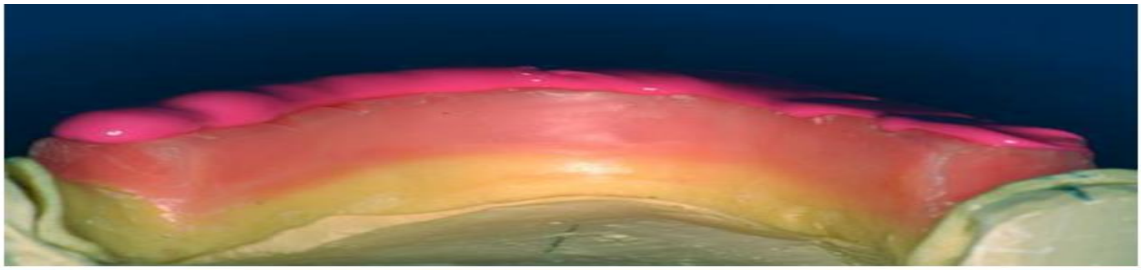


Registering Centric Relation

Two sharp "V"-shaped notches (maxillary bite rim) in the molar/premolar area of each sided wax depth 1-2mm. Ensure adequate notch depth



-Apply thin layer of recording medium on (mandibular bite rim).
-Instruct the patient to close in centric relation position.
-Check the record.





Indications of the Interocclusal check record:

1-Abnormally related jaws.
2-Displaceable, flabby tissues (weak tissues).
3-Large tongue.
4-Uncontrollable mandibular movements.
5-It can also be done for patient already using a complete denture.

Swallowing method

In this method, soft cones of wax are placed on the lower record base. The wax cones contact the upper occlusion rim when the patient swallows. ***This procedure is supposed to establish both proper vertical and horizontal relation of mandible to maxilla***.

Methods for assisting the patient retruded the mandible:

1. Instruct the patient by saying “let your jaw relax, pull it back, and close slowly and easily on your back teeth”
2. Instruct the patient to contact with his tongue a piece of wax placed on the posterior palatal seal area and slowly close.
3. The patient is asked to bring his upper jaw forward while occluding on the posterior teeth.
4. The head is tilted backward which makes protrusion more difficult
5. The patient is asked to swallow and close slowly.
6. Instruct the patient to do routine jaw exercises.

Factors that complicates centric relation record

1- Resiliency of the tissues supporting the denture base.
2- Stability and retention of the record bases.
3- The TMJ and its neuromuscular mechanism.
4- Amount of pressure applied in making the record.
5- Technique employed in making the record.
6- The ability of the dentist.

Eccentric jaw relations:

Any relationship between the jaws other than centric relation.

Lateral jaw relation: The relation of the mandible to the maxillae when the lower jaw is in a position to either side of centric relation.

Protrusive jaw relation: The relation of the mandible to the maxillae when the mandible is thrust forward.

Methods of recording eccentric jaw relations:

The main reason in making an eccentric jaw relation is **to adjust the articulator to simulate the eccentric movement of the mandible to the maxilla, and establish balanced occlusion.**

The methods are similar to that made for centric relation and include, the functional, graphic and inter occlusal records.

Inter occlusal eccentric records

(Protrusive, left and right lateral movement), can be made on the occlusion rim or on the posterior teeth at the try-in appointment.