

ri Aurobindo College of Dentistry

Indore, Madhya Pradesh
INDIA



MODULE PLAN

- TOPIC :SINGLE COMPLETE DENTURE
- SUBJECT: PROSTHODONTICS
- TARGET GROUP: UNDERGRADUATE DENTISTRY
- MODE: POWERPOINT – WEBINAR
- PLATFORM: INSTITUTIONAL LMS
- PRESENTER: **DR.FURKAN AHMED KHAN**



Single complete dentures

Single complete dentures are the making of a maxillary or mandibular denture as distinguished from a set of complete dentures.

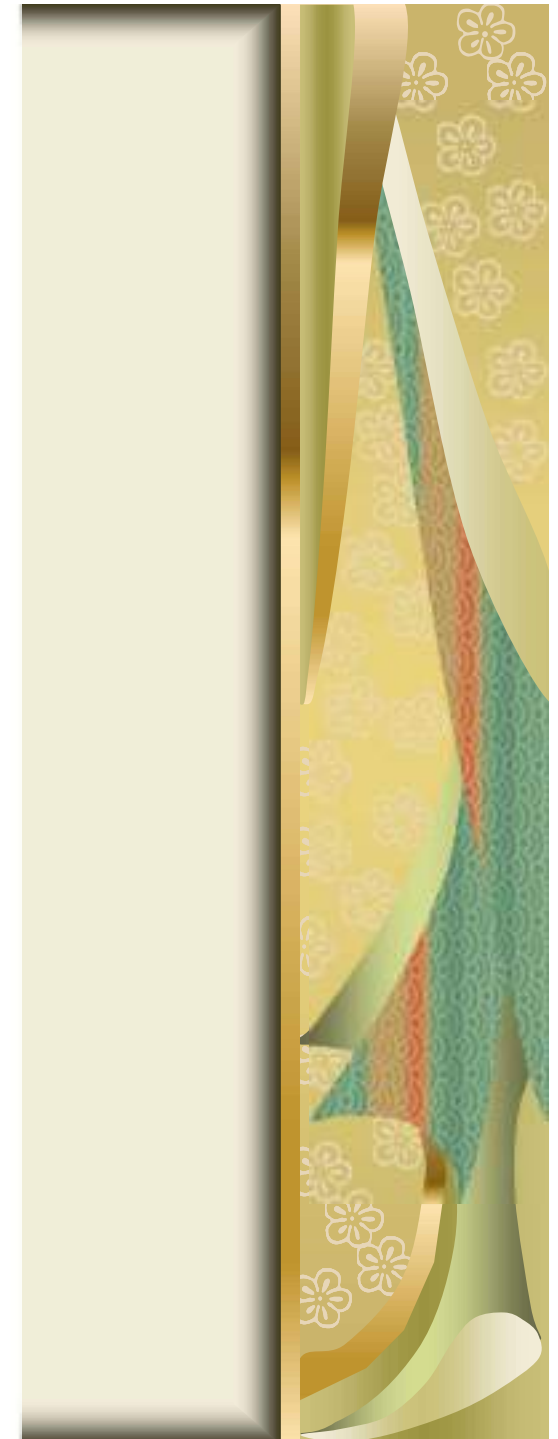
Objectives

- To achieve an acceptable interocclusal distance
- To achieve a stable jaw relationship with bilateral tooth contacts in retruded closure
- To achieve stable tooth quadrant relationships providing axially directed forces
- To achieve multidirectional freedom of tooth contacts throughout a small range of mandibular movements

Indications for single complete denture

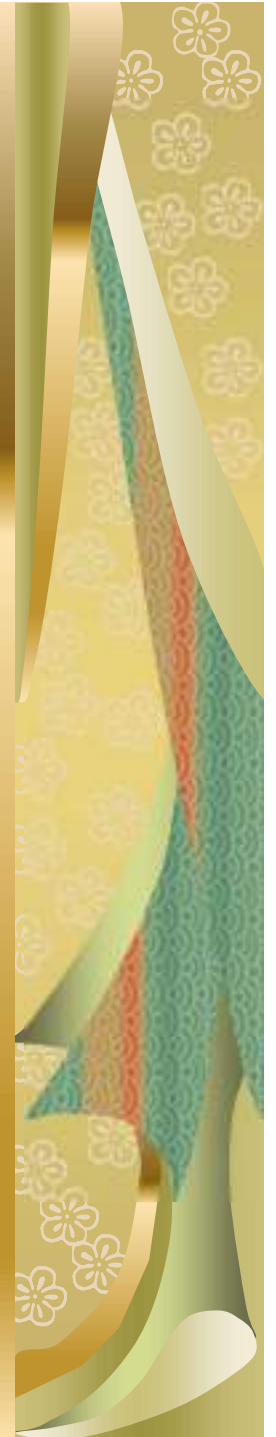
Single complete denture is desirable when it opposes any one of the following:

- Natural dentition only
- Combination of fixed restorations and the natural teeth
- A removable partial denture and the natural teeth
- An existing complete denture



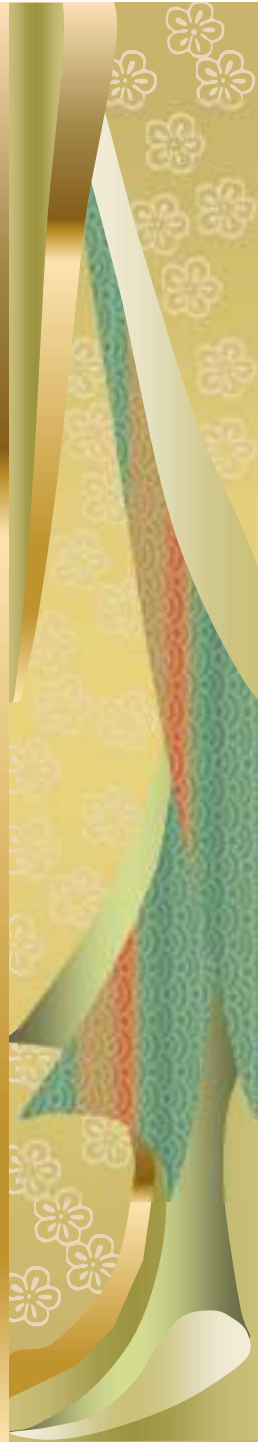
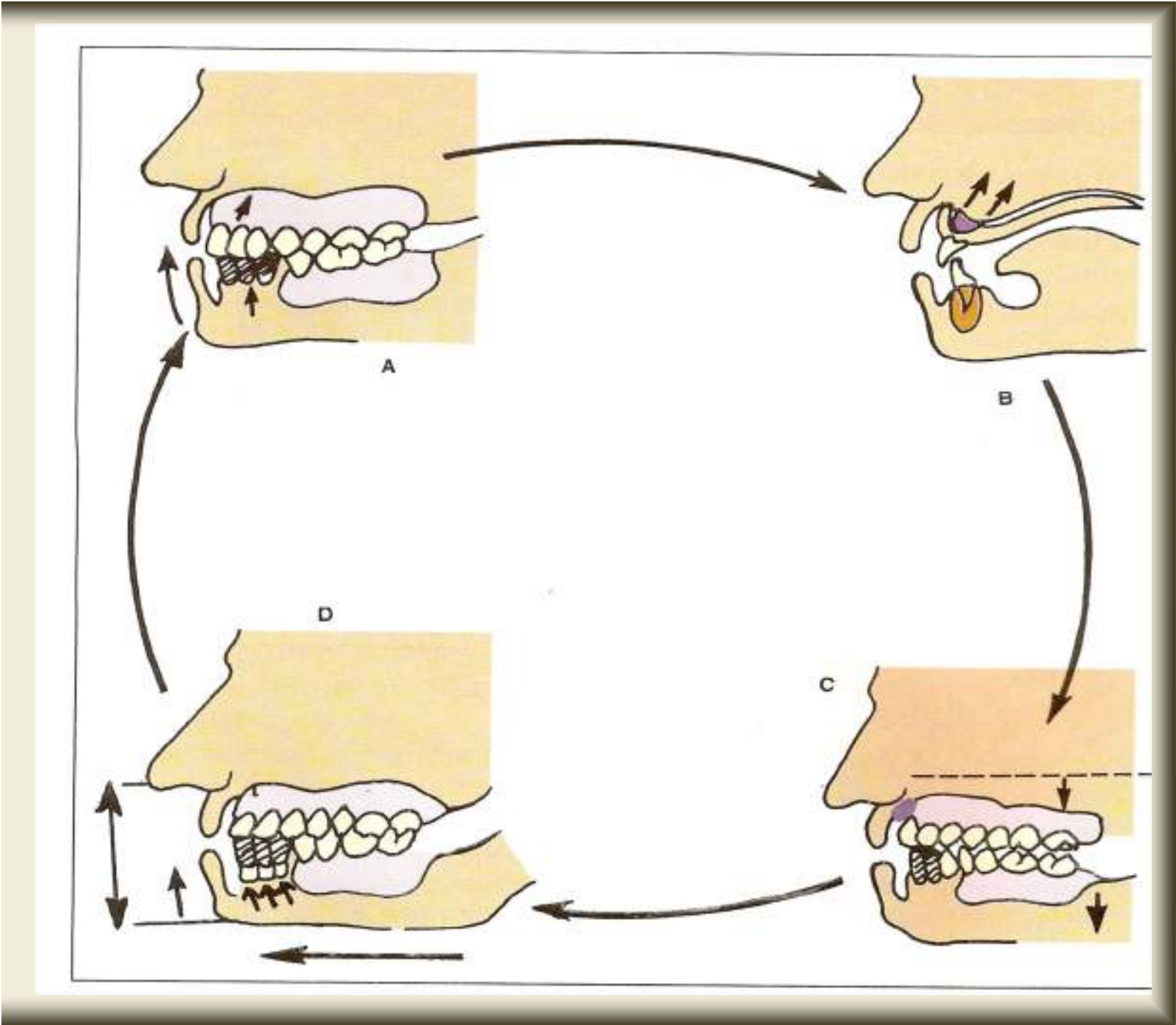
PROBLEMS WITH THE SINGLE COMPLETE DENTURE

1. The remaining natural teeth are often tipped, supraerupted or malposed. This results in an **uneven occlusal plane** which makes it difficult to obtain a harmonious balanced occlusion. Unfavorable occlusal forces can **destabilize** the denture causing soreness and ultimately **ridge resorption**.
2. **Supraerupted teeth** can **reduce the space** available, making setting of artificial teeth a laborious process.
3. A mandibular SCD opposing upper natural teeth is extremely complicated. The **reduced surface area of the lower ridge** results in excessive forces on the ridge resulting in **rapid resorption**. The lower SCD is therefore rarely indicated.



4. The upper SCD opposing lower natural anterior teeth often results in the *combination syndrome*.
5. **Occlusal wear** is another problem. Acrylic wears quickly when opposing natural teeth. On the other hand if one uses porcelain teeth to counter this, the porcelain teeth results in the wear of natural teeth.
6. The **fixed position of lower anterior natural teeth** gives us **less** flexibility for **esthetic** placement of **upper** natural teeth.





SINGLE COMPLETE DENTURE

According to GPT single complete denture is defined as the making of maxillary or Mandibular denture as distinguished from a set of complete dentures.

TYPES :

1. SCD (single complete denture) opposing natural teeth.
2. SCD opposing a (preexisting) complete denture
3. SCD opposing a removable partial denture
4. SCD opposing an overdenture
5. SCD opposing an implant supported denture



TOOTH MODIFICATION TECHNIQUES

The tooth modification techniques includes following :

1. **Swenson's method** : The maxillary and mandibular casts are mounted on the **articulator in centric relation**. The denture teeth are set. Any opposing **natural teeth which interfere are ground and the area marked by pencil**. The natural teeth are then modified using the cast as guide. After completion of the modifications, a new cast is made and mounted. If more adjustments are needed the procedure is repeated. Once the operator is satisfied, the denture teeth are reset and prepared for try-in. this technique is simple but it can be time consuming especially if **several impression have to be made**.
2. **Yurkstas method** : He used a metal **U-shaped occlusal template** which was slightly convex on the lower surface. When placed on the occlusal surface of the remaining teeth, the high cusps are easily identified. These are reduced on the **stone cast, marked with a pencil and later reduced in the mouth**.



3. ***Bruce's method*** : After making all necessary reductions on the stone cast an acrylic template is made. This template is used along with a pressure indicating paste to identify areas needing modification.

4. ***Boucher's method*** : The cast are articulated using tentative jaw relation. Interferences. Interferences are removed by rubbing the maxillary porcelain teeth over the mandibular stone occlusal surfaces. The denture is processed. The stone cast is then used as a guide to modify the natural teeth until a harmonious balanced occlusion is achieved



METHODS TO OBTAIN BALANCED OCCLUSION

Once the teeth have been modified, the final impression is made and the cast is mounted on the articulator. The next aim of the operator is to achieve a harmonious balanced occlusion.

There are 2 different methods to achieve this :

- Functional chew-in.
- Articulator equilibration.

The functional chew-in techniques are performed intraorally, whereas the other techniques are carried out on a programmed articulator.



FUNCTIONAL CHEW-IN

1. *Stansbury's techniques – 1928* :

Stansbury gave the first functional chew-in technique in 1928 for an **upper complete denture opposing lower natural teeth**. Compound maxillary rims were used. The buccal and lingual sides were trimmed away leaving a single fin like ridge along the middle. Carding wax is added to replace the trimmed portions.

The patient is instructed to perform lateral and protrusive movements. These movements mold the wax. The compound fin in the middle preserves the vertical height. This is known as a ***functionally generated occlusion***. The occlusion rim is removed from the mouth and stone is vibrated into the generated pathways to obtain a positive stone cast of the generated occlusion.

We now have two casts the original cast is used to set the teeth. The second cast of generated occlusion is then secured to the articulator after detaching the original cast. Using **articulator paper** all the interferences are eliminated. The occlusion thus obtained is free of lateral and protrusive interferences.



2. *Vig's techniques :*

Vig describes a similar technique in which he uses a fin of a resin placed in to central grooves of the lower posterior teeth, instead of using compound. The resin fin maintain the vertical dimension. In eccentric movements the lower cusp are ground until equal contact occurs between the teeth and resin. The fin is then built up using a soft wax, and a **functional path** is recorded.

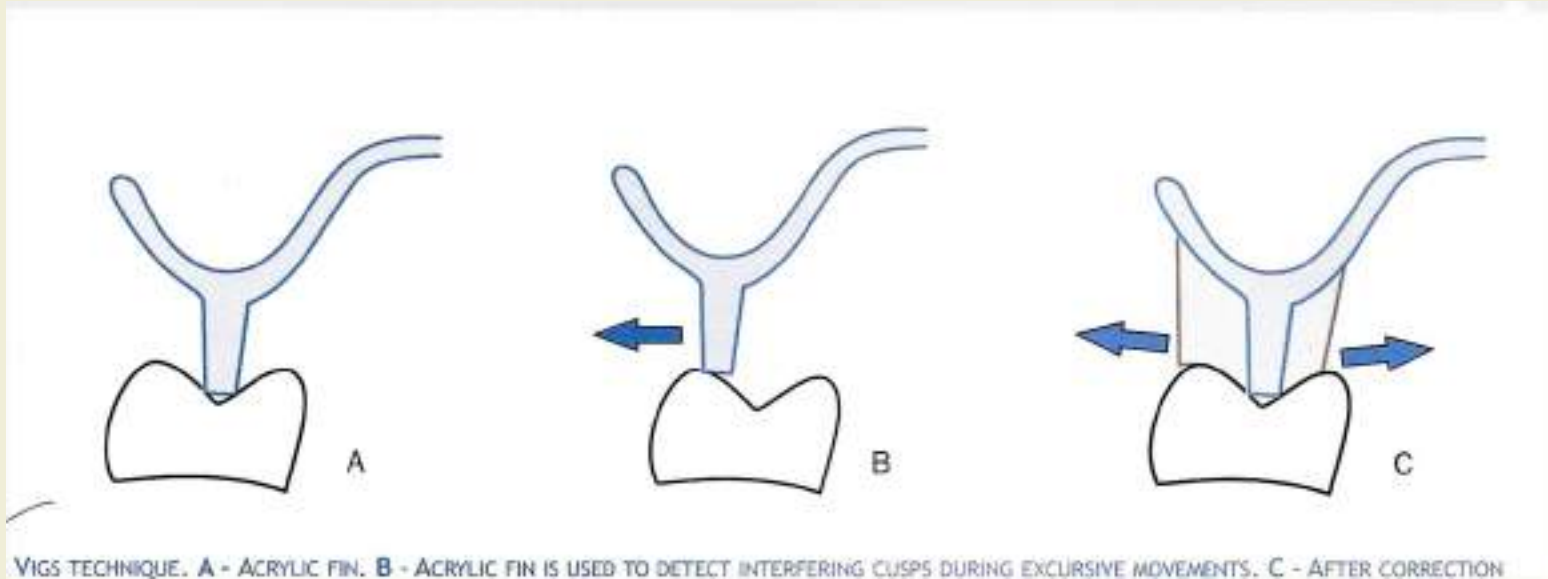
3. *Sharry's technique :*

He used a wax rim at a slightly higher vertical height. Eccentric movements are made to record the path ways until the **correct dimension is reached**.

4. *Rudd's technique :*

It is similar to stansbury's technique. Rudd also uses a compound maxillary rim. A thickness of recording matrix, made up of 3 sheets of medium-hard ink base plate wax and 2 sheets of red counter wax, is added to the buccal and lingual surfaces of the rim. He also suggest using 2 maxillary bases, 1 for recording generated path and the other for setting the teeth. Advantage – Reduces the number of appointments.





VIGS TECHNIQUE



Yurksta's method

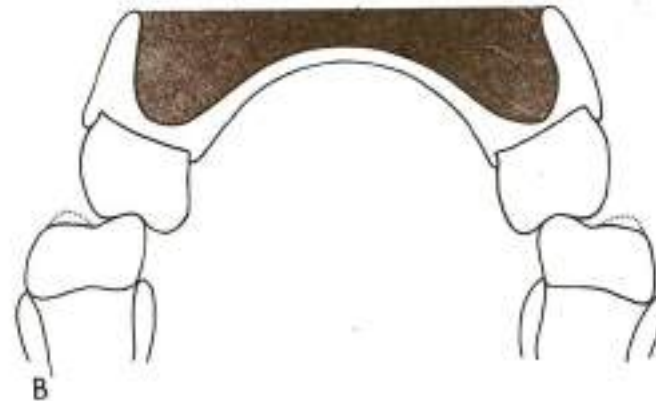
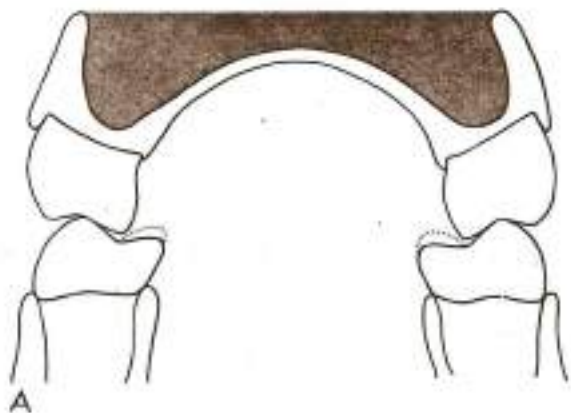


ARTICULATOR EQUILIBRATION TECHNIQUES

- If the patient is **physically unable** to form a chew-in record, the articulator equilibrium method is preferred.
- First the **upper cast is mounted on an articulator using face-bow** with a orbitale pointer. The **lower cast** is related to the upper cast by a **centric interocclusal record**.
- If the denture teeth appear to be placed too far to the buccal when articulated with the lower buccal cusps, they are reset to oppose the lower lingual cusps.
- If the denture teeth appears to be placed too far lingually when articulated with the lower lingual cusps, they are reset to oppose the lower buccal cusps.
- **Once the holding cusps have been selected, the inclines of the remaining cusps are reduced.** When the lower buccal are selected, the lingual cusps are reduced. When the lower lingual cusps are selected, the buccal cusps are reduced. This allows for a **cusp-to-fossa** relationship between upper and the lower teeth.



- In centric occlusion, the only areas of contact on denture should be in central fossa. At the time of the wax try-in, eccentric records are made and the condylar inclinations are set on the articulator.
- After the denture has been processed, it is again related to mounted lower cast with a new centric interocclusal record. The condylar inclinations previously determined are reset on articulator. Once the centric holding stops are reestablished **by selective grinding**, eccentric balance is achieved. This is simply accomplished by selectively grinding the **interfering buccal and lingual cuspal inclines of upper teeth**.
- If any lower cusps make contact, other than the selected holding cusps, these interferences are removed by grinding the cast and then the natural teeth. The lower holding cusps should be left unaltered.



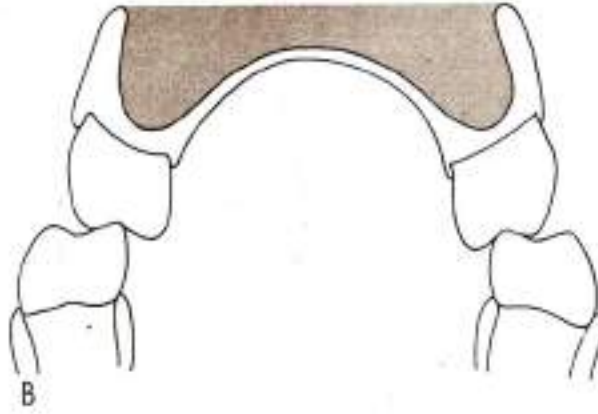
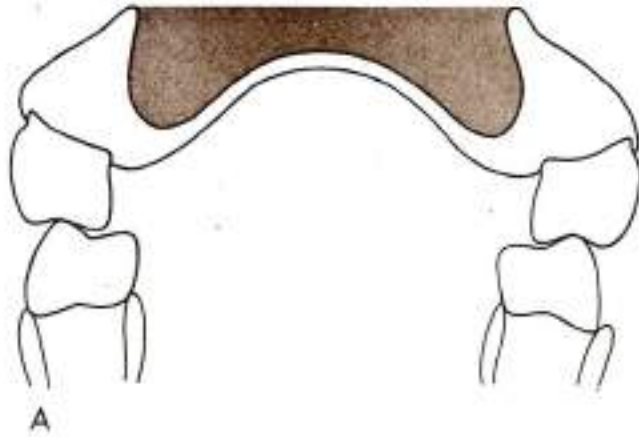


Figure 26-8 (A) Owing to the relationship of the upper and lower arches, the denture teeth appear to be placed too far off the ridge when articulated with the lower buccal cusps. (B) The denture teeth are reset to articulate with the lower lingual cusps.

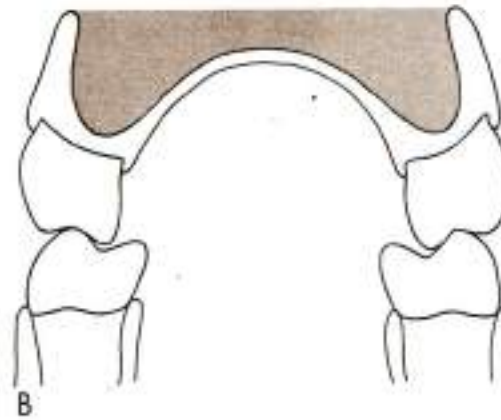
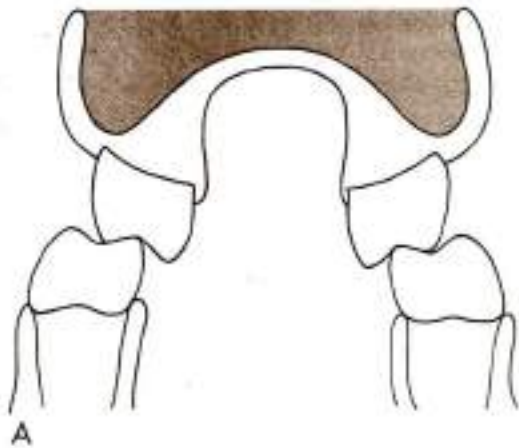


Figure 26-9 (A) Owing to the relationship of the upper and lower arches, the denture teeth appear to be placed too far palatally when articulated with the lower lingual cusps. (B) The denture teeth are reset to articulate with the lower buccal cusps.

OCCLUSAL MATERIALS FOR THE SINGLE COMPLETE DENTURE

- **Acrylic resin teeth** : The major disadvantage of acrylic teeth is that they wear easily leading to loss of vertical dimension. However the wear is preferred to resorption of the ridges or damage to natural teeth.
- **Porcelain teeth** : porcelain teeth wear very slowly but are prone to fracture and can cause rapid wear of the natural teeth. They are also difficult to grind and modify.
- **Gold occlusals** : Gold occlusals are among the best materials to oppose natural teeth. However, they are time consuming to make and are certainly more expensive.

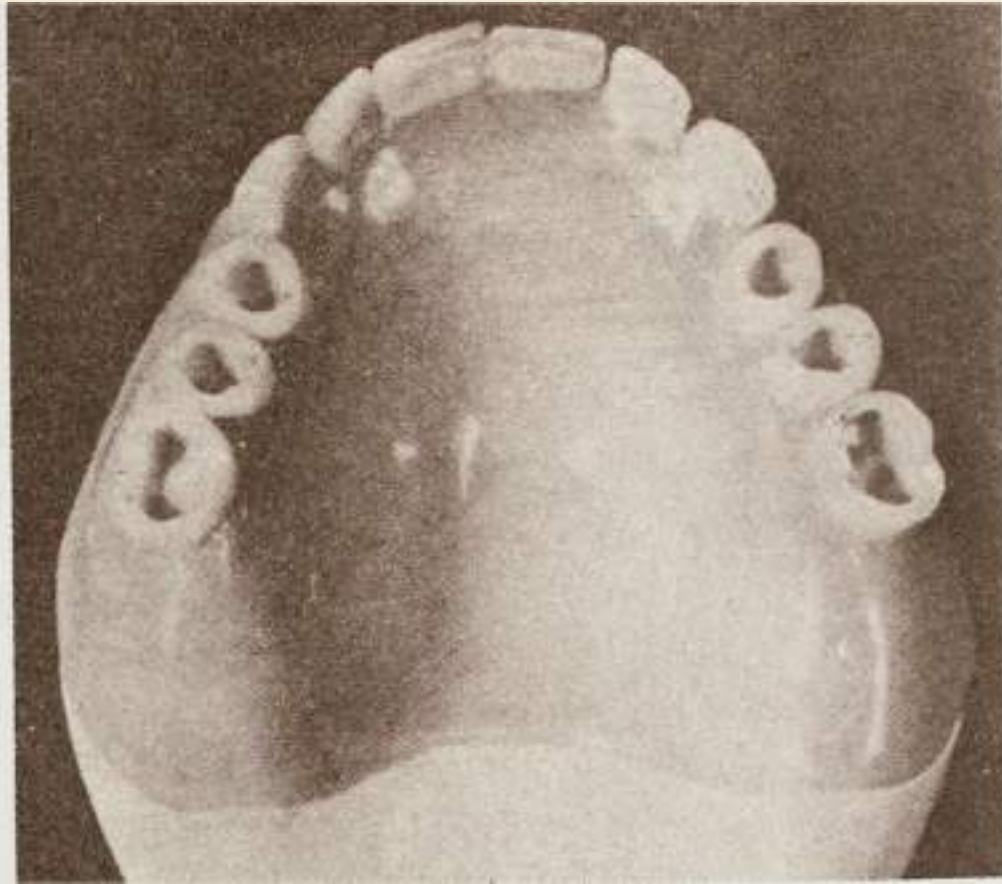


■ **Acrylic resin with amalgam stops** : This is a less expensive alternative to gold occlusals. After the balancing is completed, cavities are prepared in the occlusal surfaces of the posterior teeth including as much of the occlusal surface as possible.

Amalgam is condensed into the cavity and the articulator closed and moved back and forth and side to side until the incisal pin reestablishes contact with the incisal table. Amalgam inserts reduce the occlusal wear.

■ **IPN resin** : To minimize the disadvantages of acrylic resin and porcelain teeth and enhance certain qualities in each. It consists of an unfilled, highly cross-linked, interpenetrating polymer network.



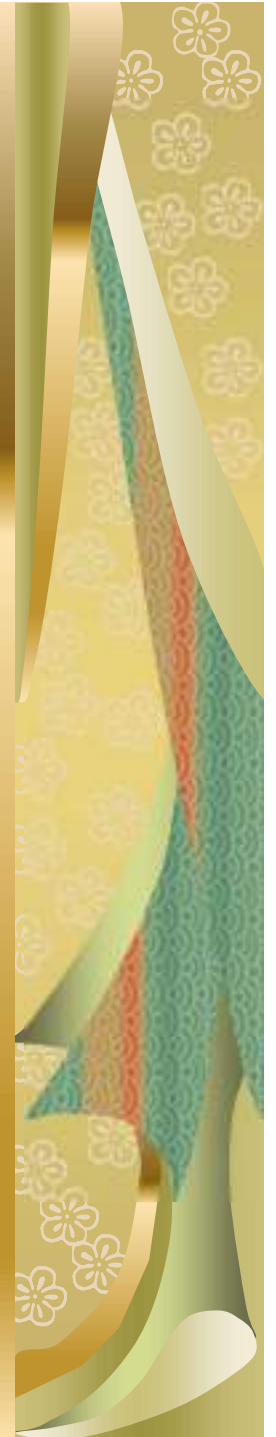


Occlusal preparation made on posterior teeth for Amalgam stops



SUMMARY

- Single complete denture has the advantage over conventional denture is that there is no need to fabricate unnecessary both the denture and even 1 denture can fulfill the purpose.
- But the disadvantage of single complete denture over conventional denture has overcome the use of single complete denture. As we know the forces exerted by the natural dentition is much more than the force exerted by the denture so this will lead to –
 - Ridge resorption
 - Wearing of the artificial teeth
- ❖ Although many procedures are carried out so as to minimize the problem associated with single complete denture but still the problems of ridge resorption existed.



A close-up photograph of a bouquet of daisies in shades of orange, yellow, and light green. The flowers are arranged in a circular pattern, and the image is framed with a decorative border. The text "THANK YOU" is centered over the bouquet in a white, serif font.

THANK YOU

Coolbuddy.com

Combination syndrome

Combination syndrome occurs when an edentulous maxilla is opposed by natural mandibular anterior teeth. It is also called *anterior hyperfunction syndrome*.

The term combination syndrome was coined by *E. Kelly in 1972*.

Features of Combination Syndrome (Fig. 12-2)

- *Loss of bone from the anterior portion of the maxillary ridge*
- *Downward growth of the maxillary tuberosities*
- *Papillary hyperplasia of the mucosa of the hard palate*
- *Extrusion of the lower anterior teeth*
- *Loss of alveolar bone and ridge height, beneath the mandibular removable partial denture bases*



There are six associated changes observed in combination syndrome as follows:

- (i) *Loss of vertical dimension of occlusion*
- (ii) *Occlusal plane discrepancy*
- (iii) *Development of epulis fissuratum*
- (iv) *Anterior spatial repositioning of the mandible*
- (v) *Poor adaptation of the prosthesis*
- (vi) *Periodontal changes*



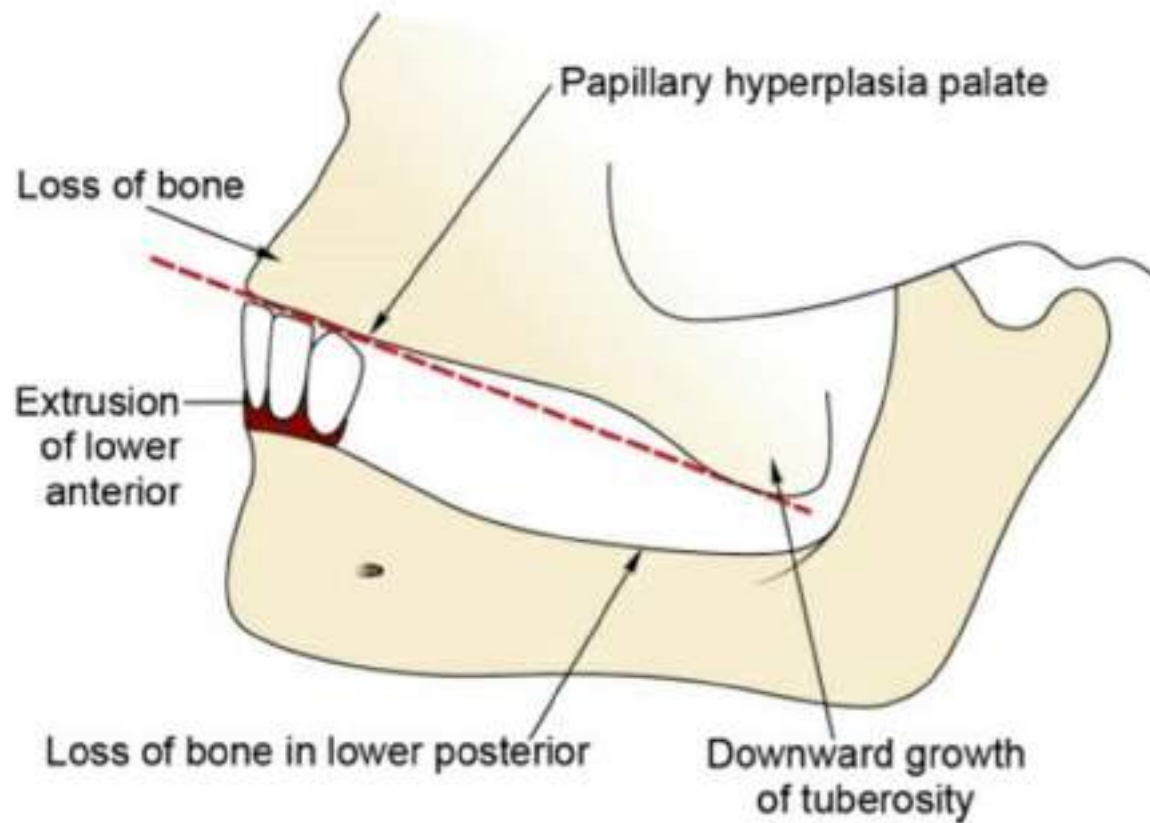


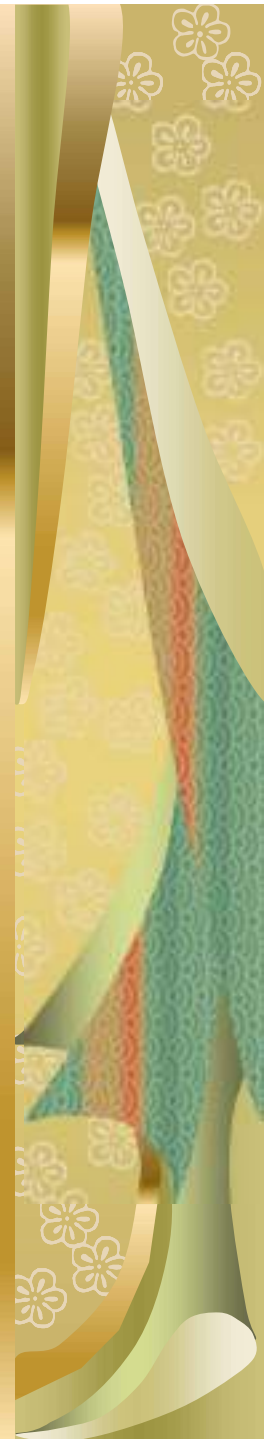
FIGURE 12-2 Schematic diagram showing features of combination syndrome.



Pathophysiology in combination syndrome

When the remaining mandibular natural anterior teeth oppose the maxillary denture, the patient tends to function in protrusive relationship to masticate. As the anterior portion of the maxillary ridge is composed primarily of the cancellous bones, it is subjected to rapid resorption. As the ridge resorps and progresses, the bony ridge is replaced by the *redundant soft tissues*, initiating the combination syndrome and the associated changes.

- With resorption of the maxillary anterior ridge, the denture tends to *tip upward anteriorly and downward posteriorly*.
- The labial flange of the denture produces chronic irritation from overextended labial flange of denture resulting in *epulis fissuratum*.
- *Posterior downward tipping* of the maxillary denture results in the overgrowth of the fibrous tissues covering the maxillary



tuberosities.

- The *retention and stability* of the denture are compromised because of the changes in the supporting tissues.
- Because of ridge resorption, the angulation of the occlusal plane changes. The mandible tends to assume more anterior position.
- Supraeruption of the lower anterior teeth takes place because of the changes mentioned earlier.
- *Loss of posterior support* in the mandible results in an increased anterior occlusal function and a decreased posterior occlusal function.

