Single Dentures

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- **Single Upper Dentures**

Opposing:

Natural dentition

Partial lower denture

- **Single Lower Dentures**

Opposing:

Upper Natural Dentition


Upper Single against Lower Dentate Arch

Over load on the Single Denture

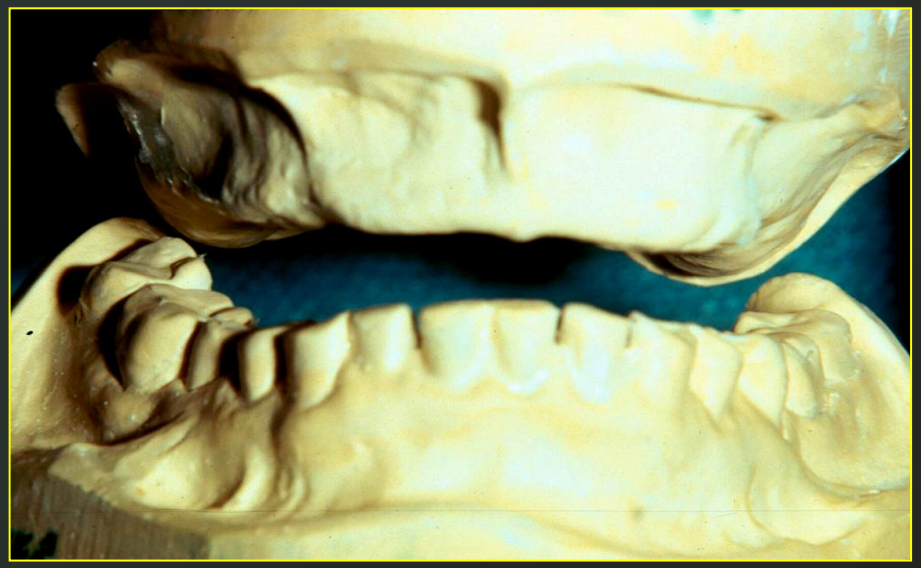
How To Overcome These Problems

Applying **the principles of CD construction** . **Maximum base extension** within functional anatomical limits. **Reduction of the forces** to which the denture is subject → **Occlusal Adjustment and Tooth Modification → Balance occlusion**


Diagnosis
check-out


Occlusal Plane
Adjustment
&
Tooth Modification

Occlusal Plane Discrepancies



Tooth Reduction Protocol

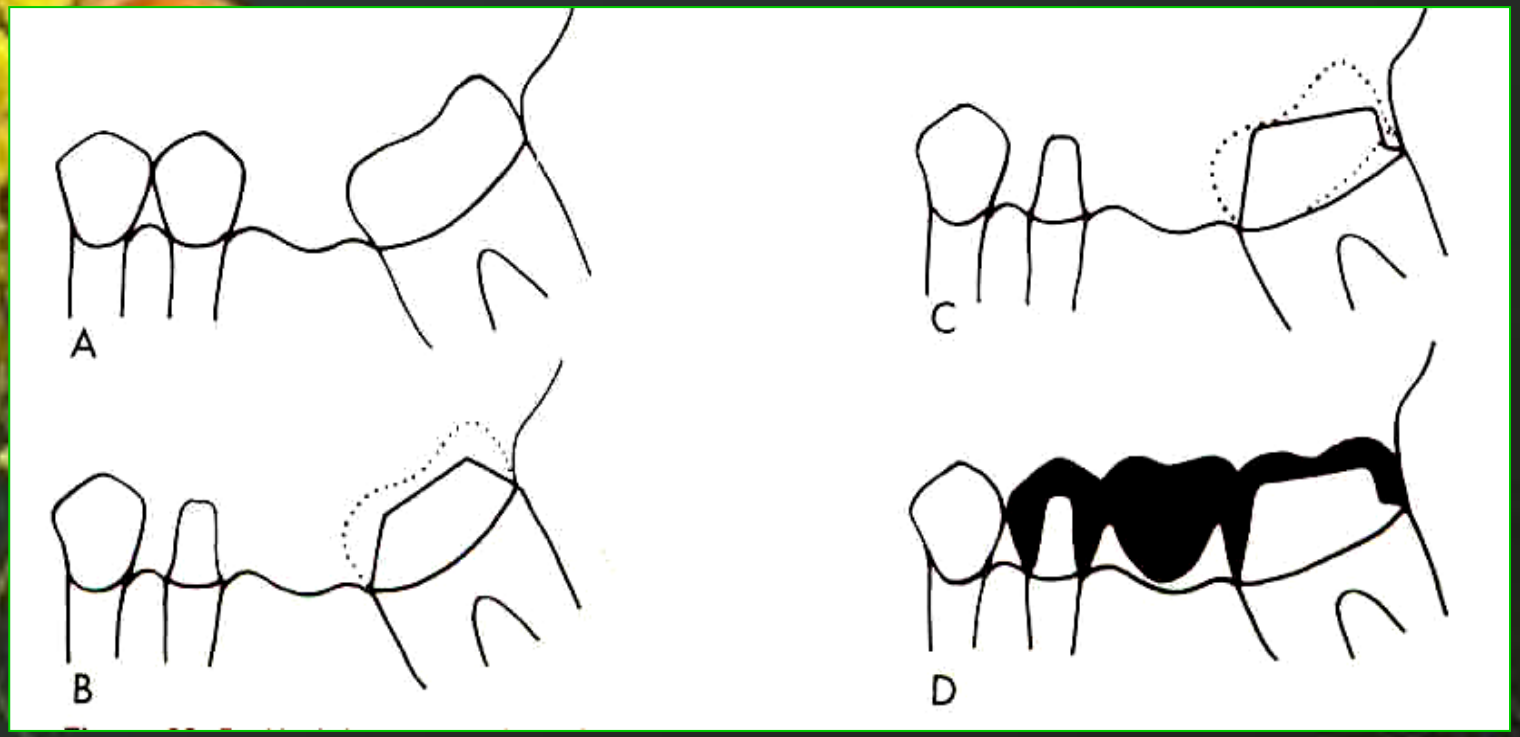
- Confirm pulpal maturity (X-rays, EPT)
- No anesthesia
- Begin with teeth requiring most reduction

Preparing Plane of Occlusion

Individual Tooth Modifications

- Sharp Unworn Cusps → Reduce cuspal inclination.
- Heavily Abraded Teeth → Reduce Bu-Li width.

Common Occlusal Disharmonies


A
B
C
D

Tooth modifications and occlusal adjustment

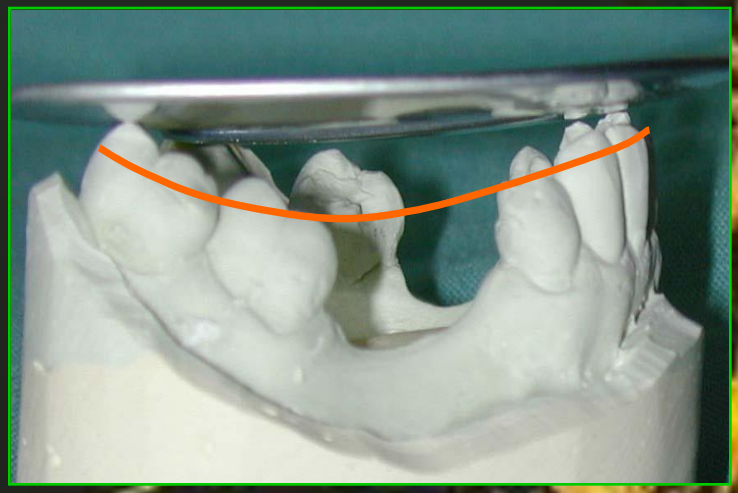
I- Swenson's Technique

II- Bruce Technique

III- Yurkstas' Technique

IV- Boucher's Technique

V- Custom Template-Resin Techniques

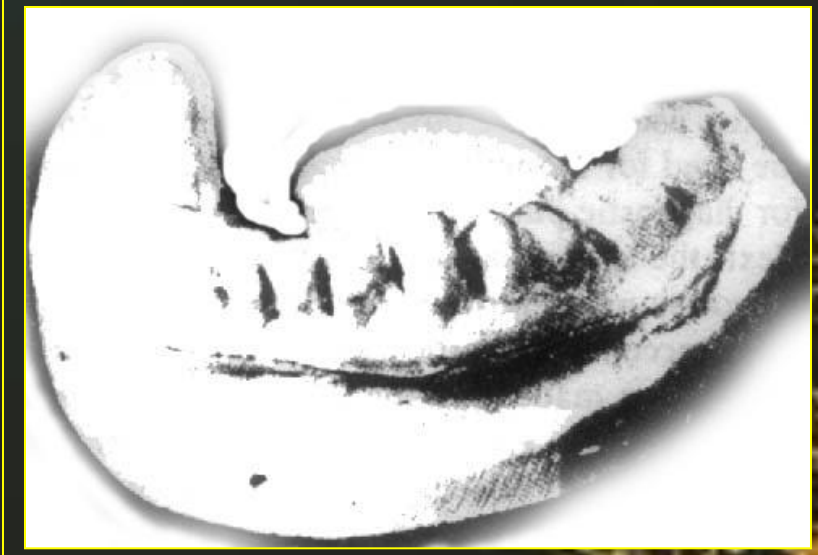


Swenson's Technique

- Denture teeth are set and when the natural teeth interfere with placement of denture teeth, stone teeth are adjusted and marked on the cast with pencil.
- The natural teeth are modified by using the diagnostic cast as a guide.

Bruce Technique

The Modifications are made on the stone cast. A clear acrylic resin template is fabricated over the modified stone cast & with pressure indicated past on the internal surface of it , the unfavorable areas are shown → remove them.



Boucher Technique

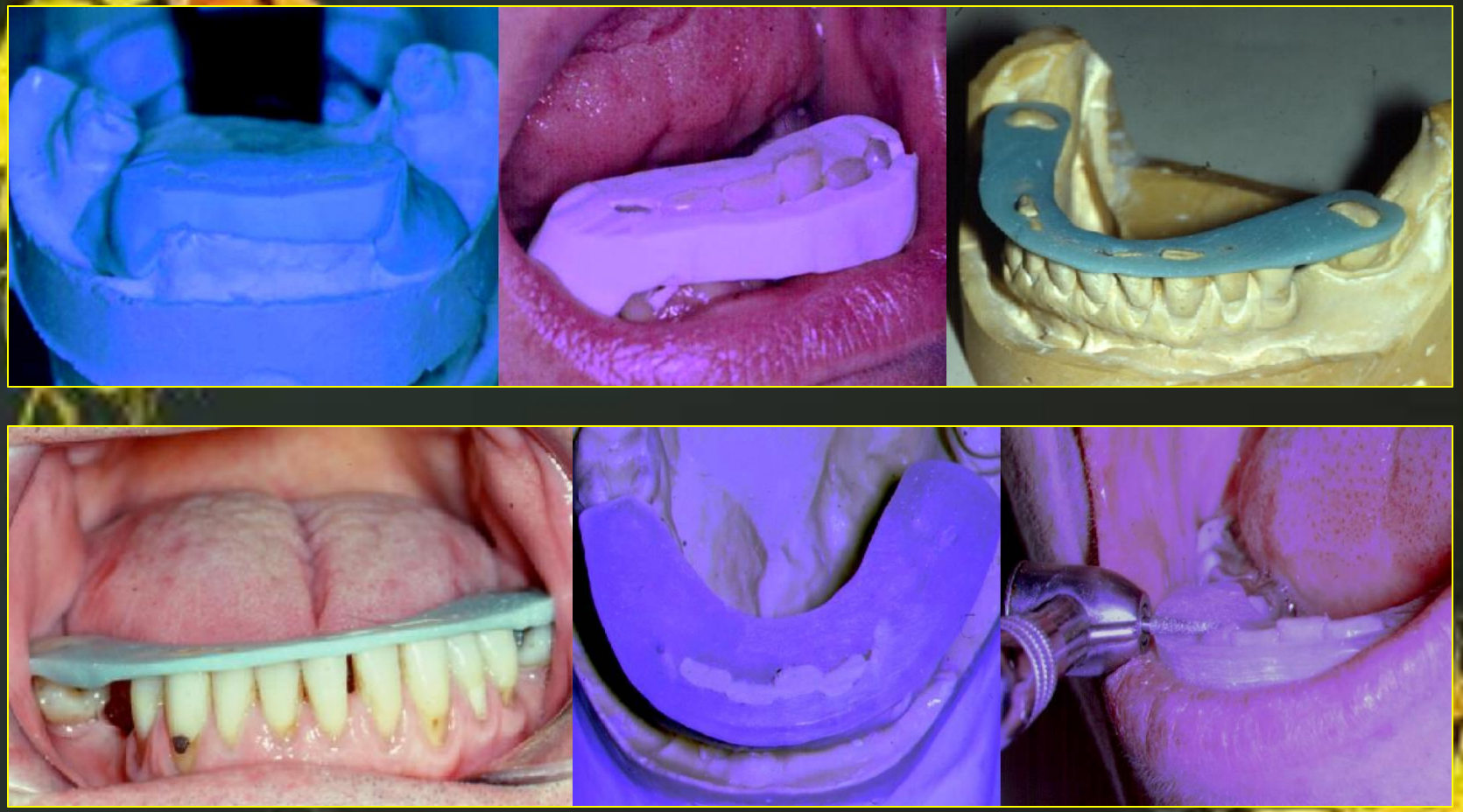
The interferences are removed by movement of the maxillary porcelain teeth over the mandibular stone teeth. Prematurity's are identified and removed by grinding the natural teeth. The procedure is repeated for right and lateral excursions until a harmonious balanced occlusion is established.

Yurkstas Technique

The use of a metal U-shaped occlusal template that is slightly convex on the lower surface is placed on the occlusal surfaces of the remaining teeth.

20° Template

Custom Template – Resin Techniques




Artificial Teeth
Arrangement

Methods Used To Achieve Balance Articulation:

I - Statically equilibrated occlusion using a programmed articulator to stimulate the patient's mandibular movements.

a- Articulator equilibrated technique.

b- Articulator generated path technique.

II - Dynamically equilibrated occlusion by the use of functional generated path technique (Functional chew-in techniques)

Statically equilibrated occlusion

a- Articulator equilibrated technique.

Statically equilibrated occlusion

b- Articulator generated path technique

By using a cavity preparation in the occlusal surface of artificial teeth, like Class I. filled with amalgam like material, that altered according to articulator functional movements which simulate the chewing action of human , as much as possible.

Dynamically equilibrated occlusion:
Functional generated path technique (Stansbury, 1928)

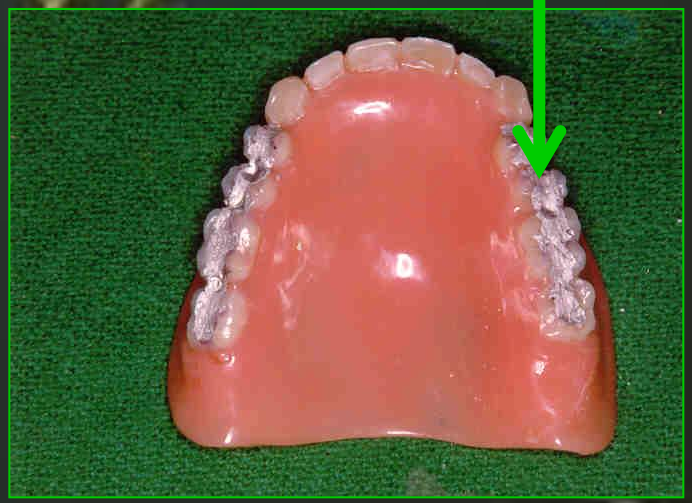
- An upper bit-rim of compound (preserve VD), that trimmed buccaly & lingually for lat. freedom movements, covers with Carding wax → that molded inside patient's mouth (developing functional occlusion path).
- Pouring the Carding wax with stone give us a model represent the functional path of lower natural teeth.
- Arranged upper teeth first related to conventional lower teeth, then to the lower model represents the "functionally generated occlusion".

Functional generated path technique (Stansbury, 1928)


Artificial Teeth
Materials &
Types

Artificial Tooth Material

- Plastic (acrylic , cross linked resin)
- Porcelain
- Metal (casted)
- Acrylic with gold occlusal surface, or amalgam stoppers.



1- Porcelain teeth

2- Acrylic resin teeth

3- Acrylic resin with gold occlusal surfaces

4- Acrylic resin with amalgam stops

5- Cross-linked resin

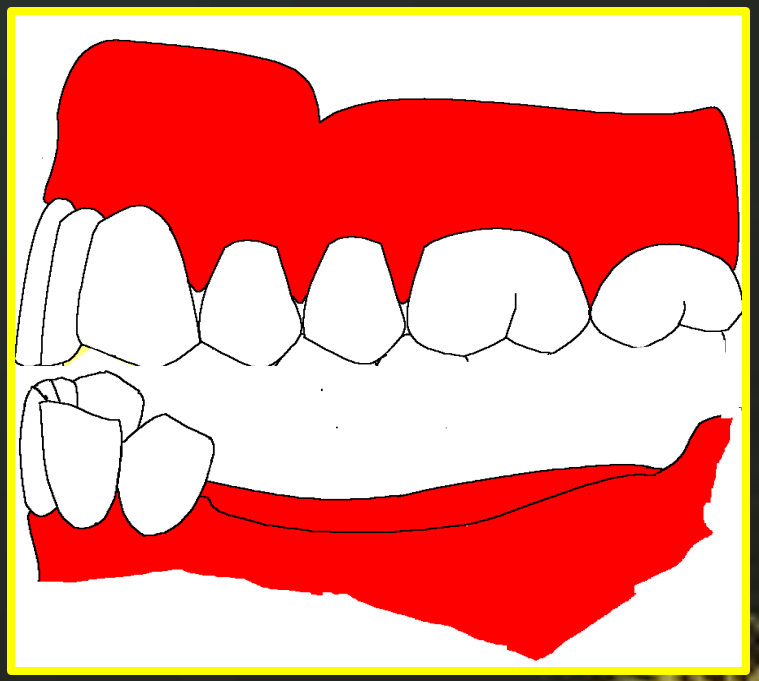

Single Denture
Supported by
Implants

Implant Assisted Overlay Maxillary Dentures Against lower natural teeth

Occlusion is **bilateral balance** in such patients


Upper Single against Lower Natural Anteriors

Single denture opposing distal extension RPD



Difficulties of Maxillary Single Denture Against Free Exten. Partial Mandible

Occlusal discrepancies

↓

Combination syndrome

+

Esthetic limitation

Excessive load

↓

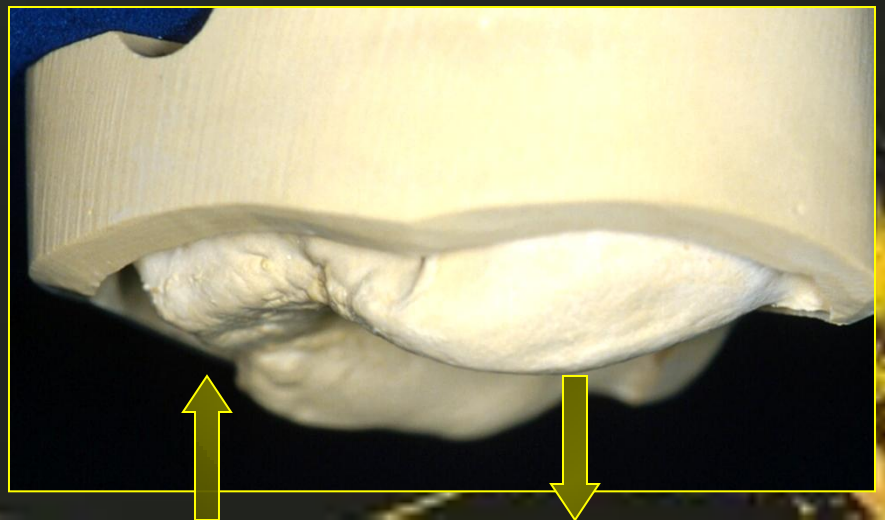
Teeth abrasion

+

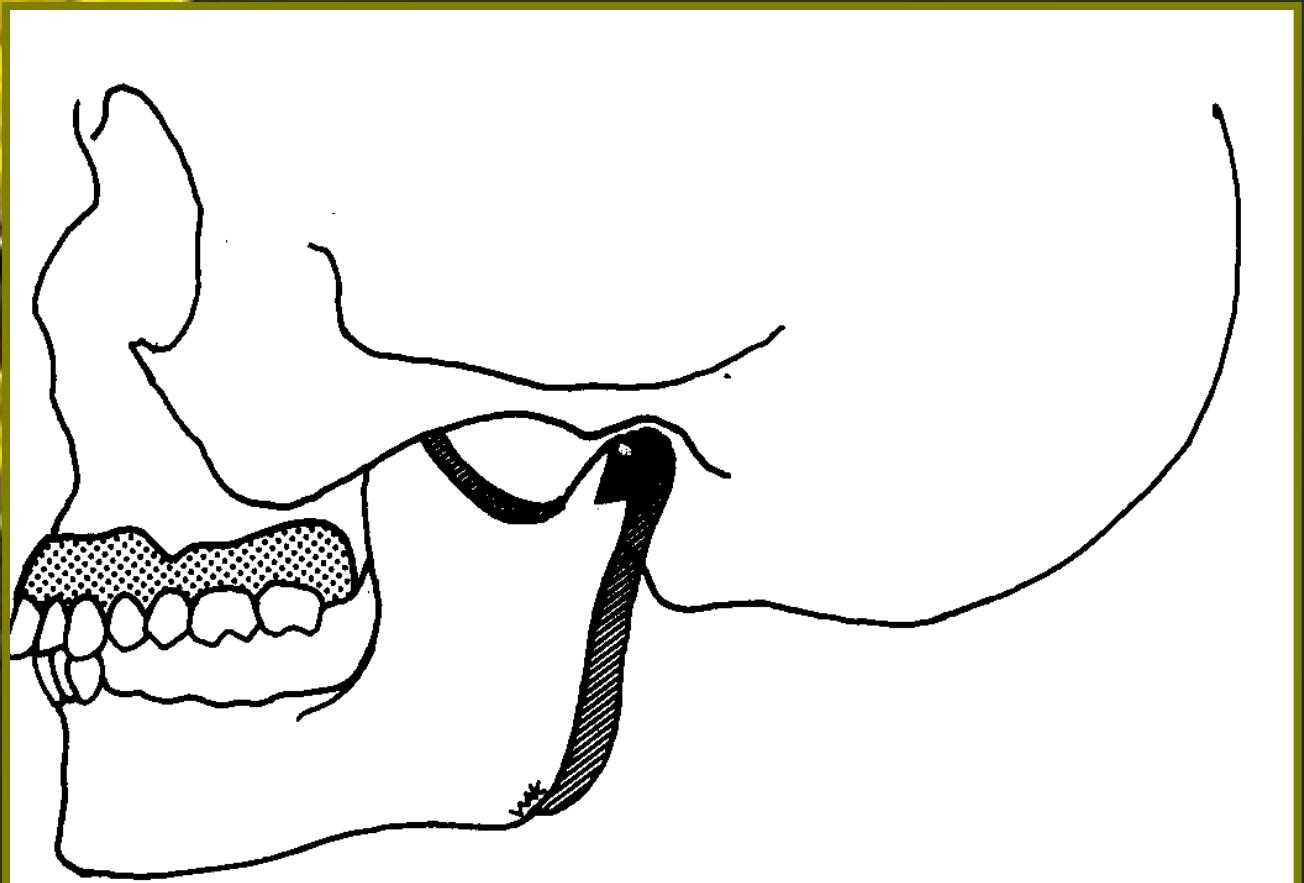
Denture fracture

Combination Syndrome

A specific pattern of resorption when anterior mandibular teeth are retained and are opposed by a complete maxillary denture. The premaxilla undergoes severe resorption and is usually accompanied by the development of fibrous hyperplasia of the maxillary tuberosity.

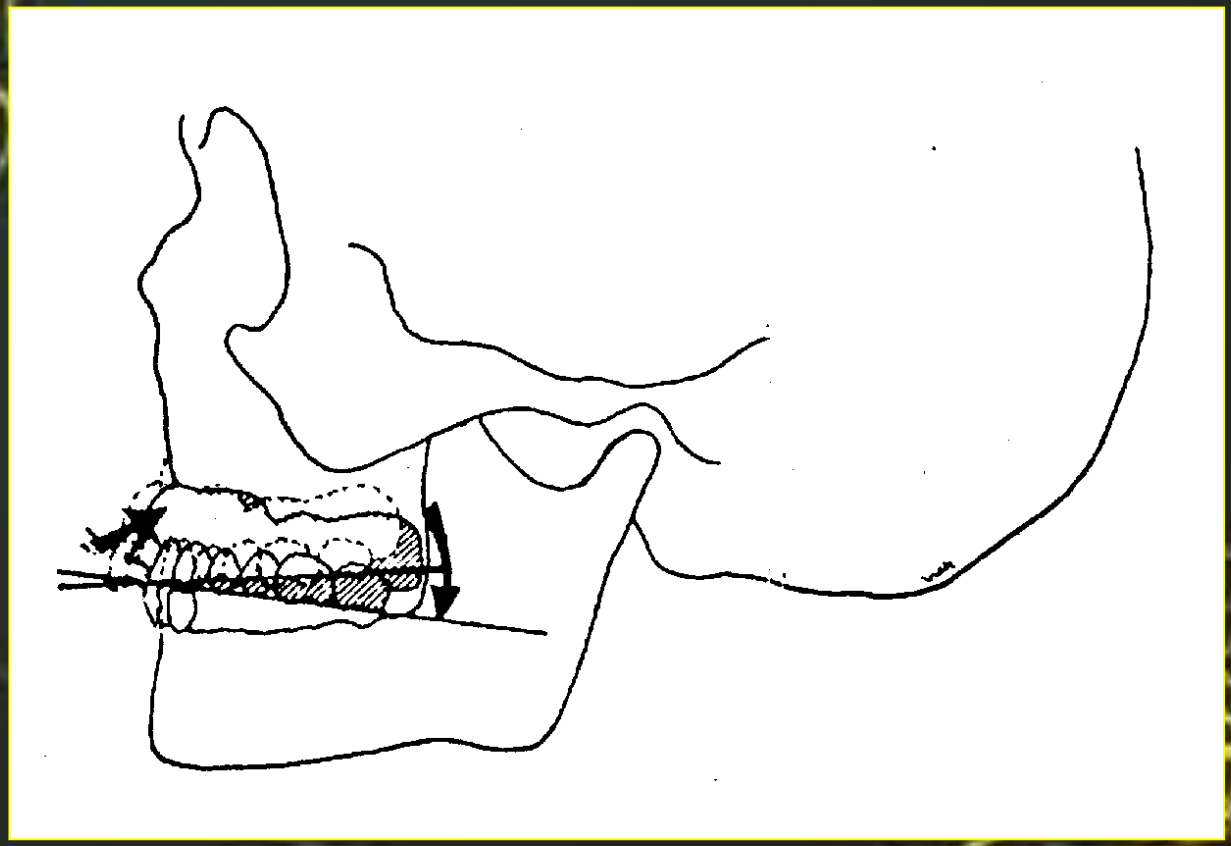


Combination Syndrome

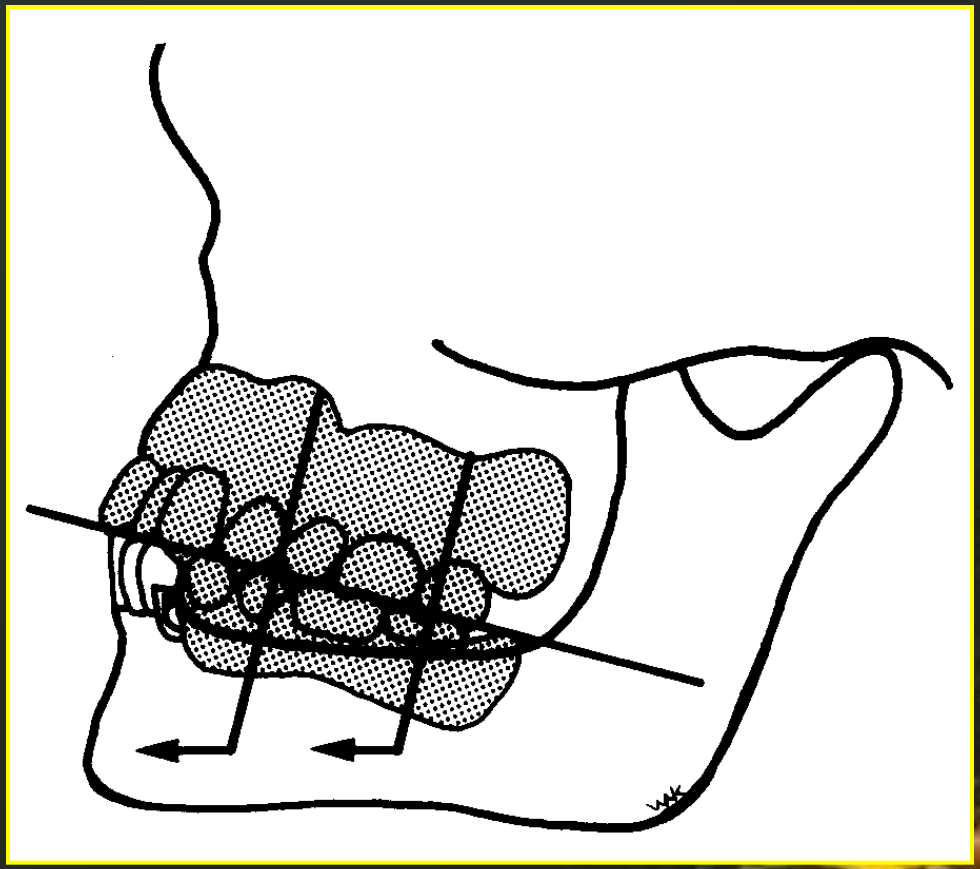


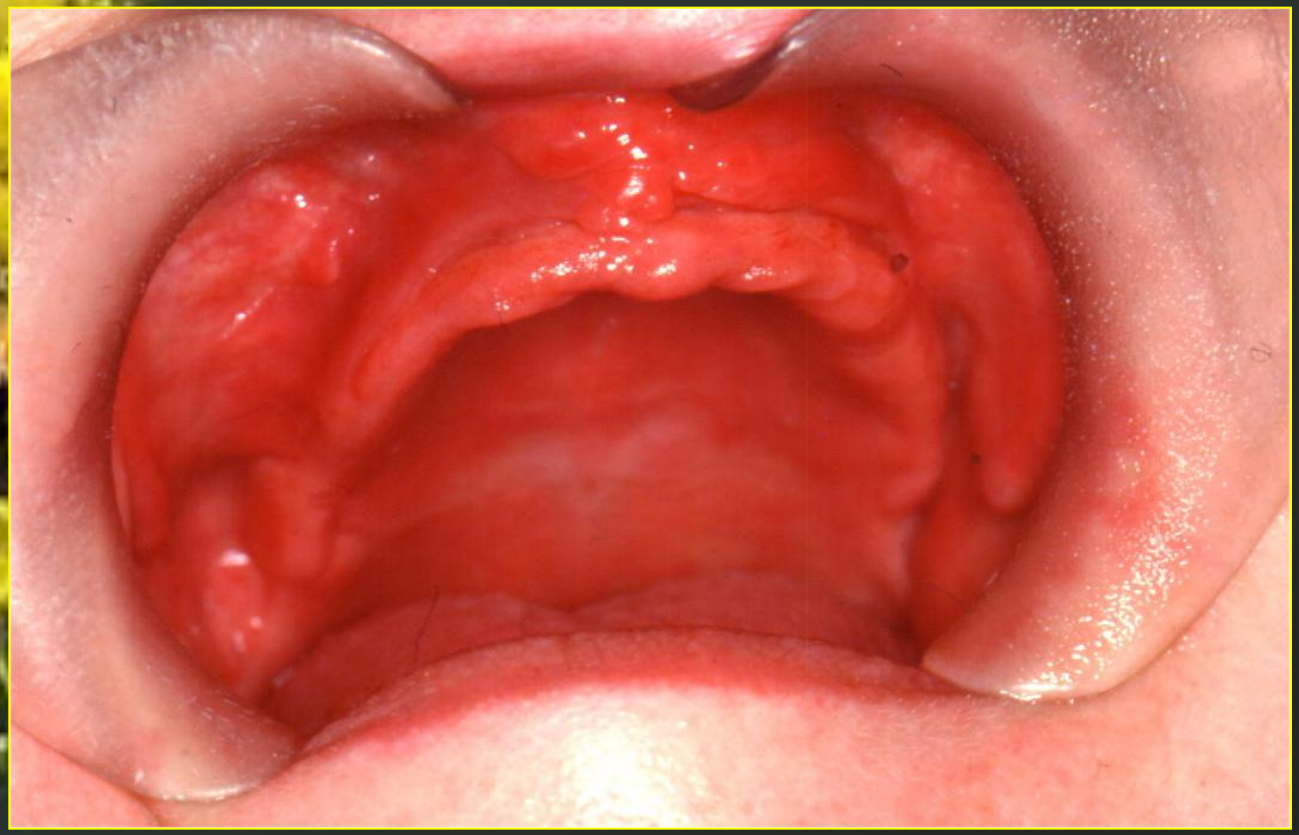
When mandibular anterior teeth remain, patient will attempt to function in protrusive relationship top sense feeling of mastication.

As bone is resorbed from maxillary anterior ridge, denture will tip upward anteriorly and downward posteriorly → V. D. O. will begin to decrease



The change in the angulation of the occlusal plane may contribute to the loss of support for the remaining natural teeth or precipitate periodontal changes.





The irritated labio-buccal flange of the denture can be develop Epulis Fissuratum, and associated with overgrowth of fibrous tissue covering the maxillary tuberosities.

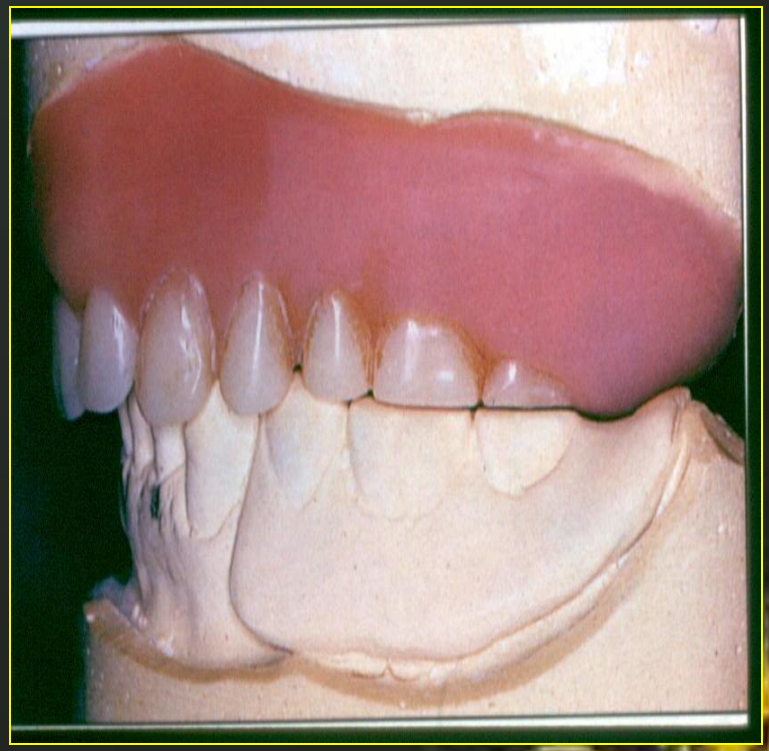
The Combination Syndrome is a Result of Three Main Factors

- The great magnitude of forces involved.
- The unsuitability of the denture foundation to resist them.
- Particularly unfavorable occlusal relationship.

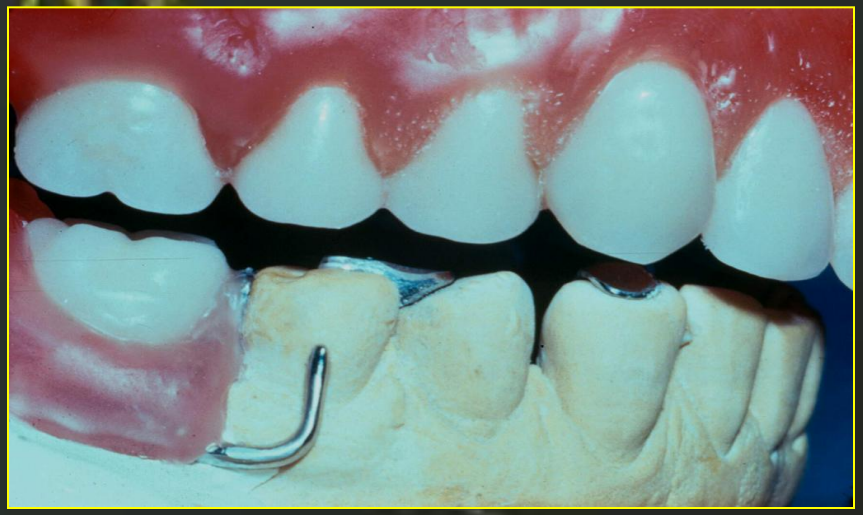

SOLUTIONS

Single denture opposing distal extension RPD

1- With some careful grinding of the canines we can produce **a bilateral balanced occlusion**

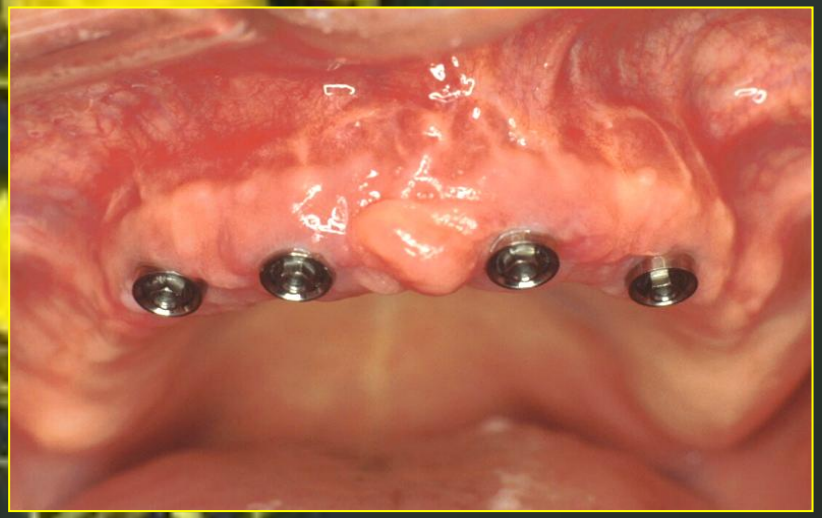


Single denture opposing distal extension RPD



2- Occlusal rests have been used to idealize the occlusal plane. balancing ramp are compatible and bilateral balance is maintained.

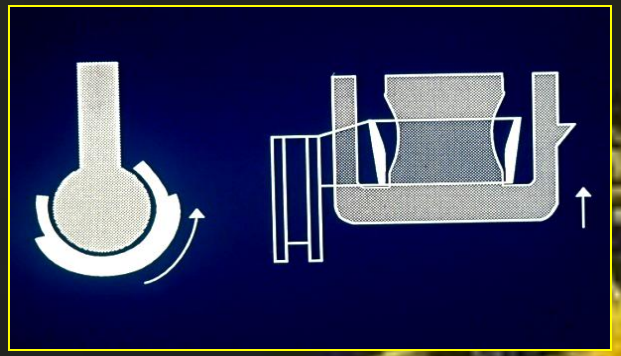
Osseointegrated Implants Overlay Denture against Lower Partial Arch



3- Implant is recommended, they prevent tipping of the denture anteriorly and provide additional retention and stability. The occlusion should still be designed to provide bilateral balance. Otherwise, the excessive tipping forces and lateral loads will lead to an excessively high implant loss rate.

Osseointegrated Implants Overlay Denture against Lower Partial Arch

Note: Resilient attachments on the distal sides of the bar bilaterally, are preferred.



4- Surgical Prosthetic Correction of COMBINATION SYNDROME


Lower Single against Upper Dentate Arch

Edentulous Mandible Opposing Dentate Maxilla

Difficulties:

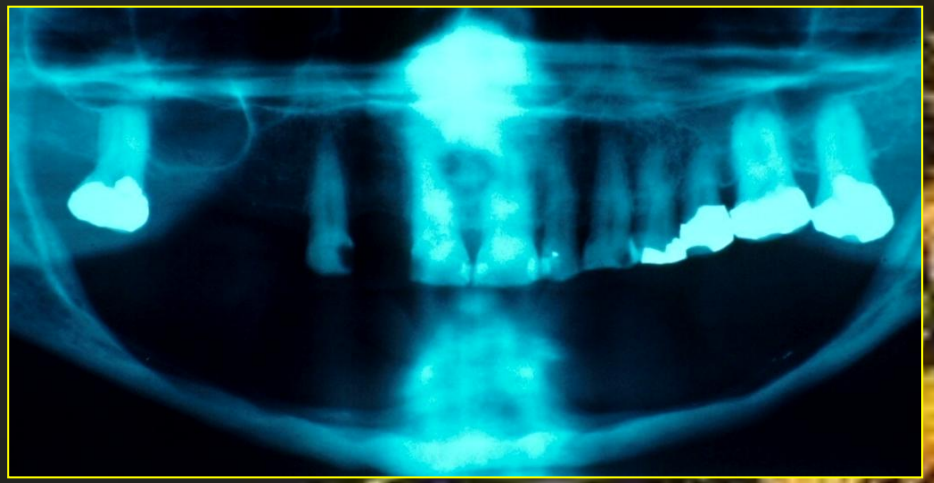
1. Excessive load
2. Occlusal problems
3. Fracture
4. Tooth wear
5. Tissue abuse
6. Minimal denture foundation area

Edentulous Mandible Opposing Dentate Maxilla

A lower complete denture opposing upper natural teeth should be avoided . A lower complete denture opposing upper natural teeth is acceptable for patients with class III jaw relation. and for a patient with cleft palate.

Edentulous Mandible Opposing Dentate Maxilla

Lower single dentures are <u>contraindicated</u> because they cause severe resorption as seen in this patient. In past years many prosthodontists recommended extraction of the remaining maxillary teeth. Today other options are available.



Edentulous Mandible Opposing Dentate Maxilla

Options other than extraction of maxillary dentition For Preservation of the Residual Alveolar Ridge

- Maximize denture base coverage
- Minimized occlusal forces
- Preprosthetic surgery
- Retention of key roots
- Use of osseointegrated implants
- Temporary soft liners replaced on a regular basis
- Permanent soft liners


You could…..

Lower Ridge Augmentation is done, if the lower R.R. was so resorbed.

Retained Roots can Used to Support Over Denture

Osseo-integrated Implants Opposing Dentate Maxilla

This type of prosthesis stops the process of resorption of the mandible. It is therefore the most desirable method for restoring the edentulous mandible that opposes a fully dentate maxilla.