



# Removable Partial Denture: Clinical and laboratory steps

## Initial appointment: Clinical examination

- Presenting complaint and its history
- Medical history (medications)
- Dental history (previous prosthesis)
- Patient expectations

## Oral examination

- TMJ and MoM
- Occlusion
- Vitality of strategic teeth
- Periodontal assessment of abutment teeth
- Assessment of soft tissues
- Study models on articulator

# Study Models

## CLINIC

Upper and lower preliminary impression

Mounting of study models on semi-adjustable articulator



## LAB

Upper and Lower Cast

Base & Rim

If required



**MMR**

## Recording of Centric Relation

### Increase of OVD

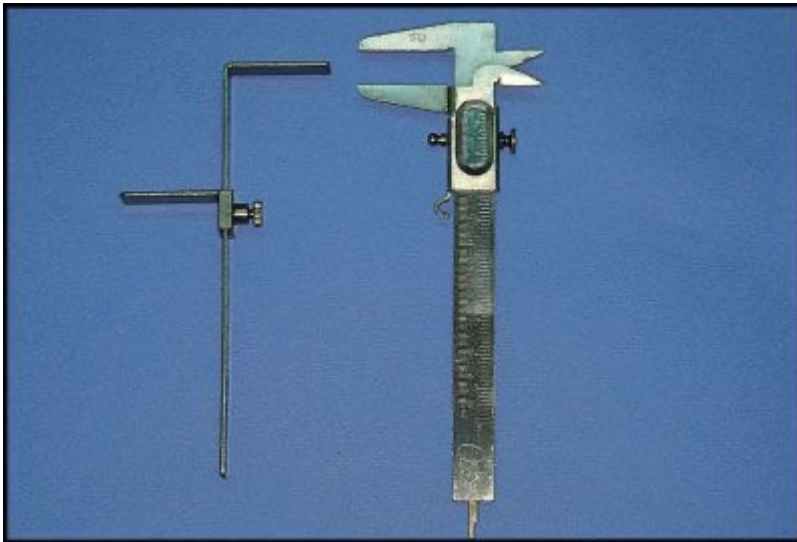


Leaf gauge



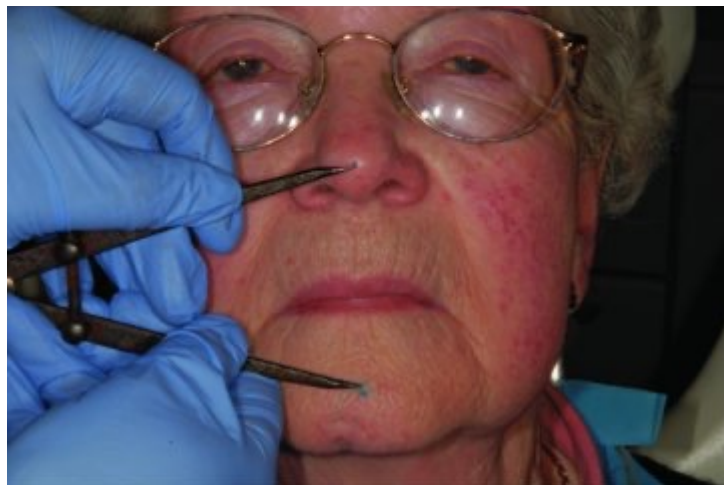
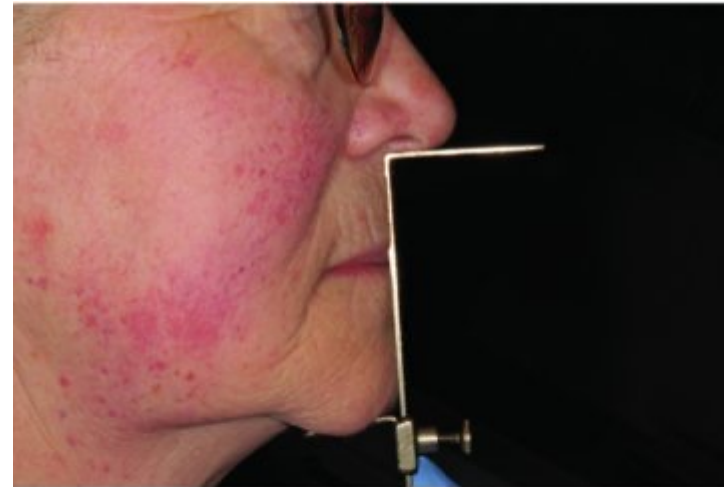
200  $\mu$ m each leaf

## Study Models



Willis bite  
gauge

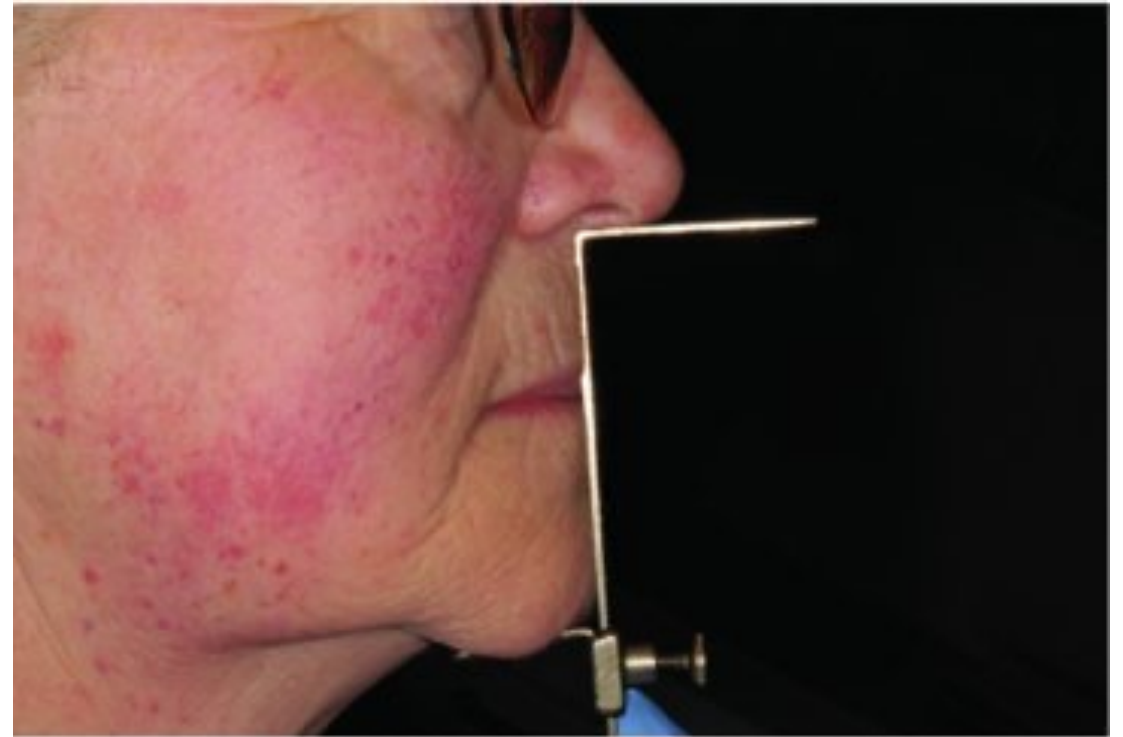
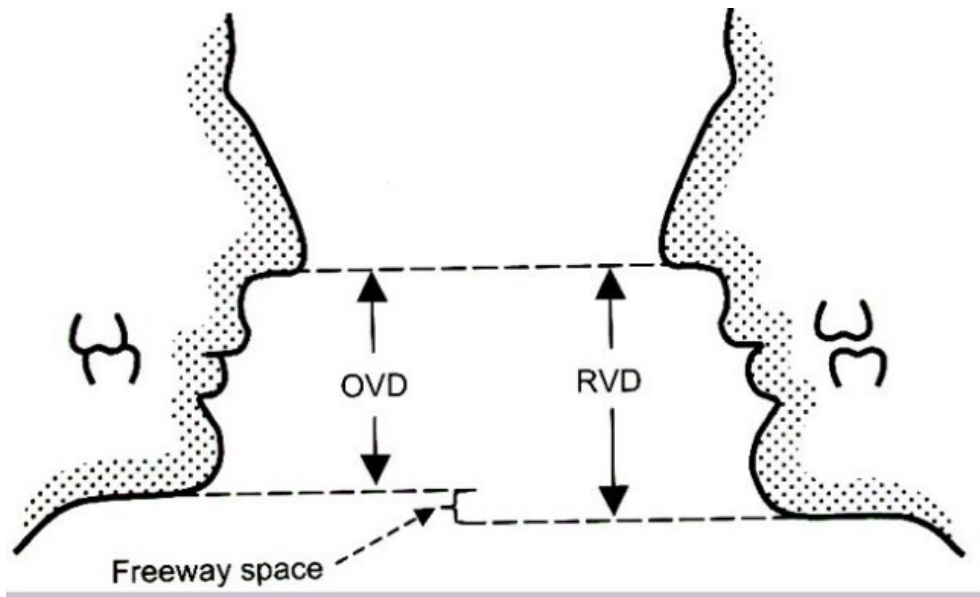
Calipers



Compass

## Study Models

**OVD = RVD – Freeway space**



## Study Models

### Phonetics tests / speaking method

- Sibilant phonemes: S sound
- 2-3 mm between incisors (closest speaking space)

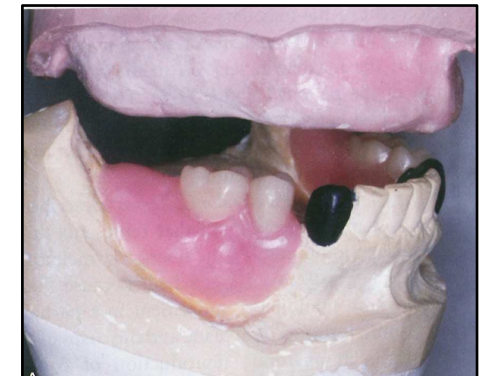
## Study Models

### Diagnostic workup



Prof Hotinski

- Simulate the teeth position
- Wax-up crowns and changes on the occlusal plane
- Plan survey crowns



LAB

RPD Survey and Design

- Another study model



CLINIC

Mouth preparation

- Endodontic treatment
- Periodontal treatment
- Direct restorations
- Guiding planes
- Rest seats
- **Survey crowns**





CLINIC

**Special tray  
(On Duplicate Study Model )**

CLINIC

Mouth preparation

Final Impression

Conventional workflow

Elastomeric impression

Master Model

Acrylic partial denture

Co-Cr partial denture

Need to send:

- Master model & bite reg
- Study model with framework design
- Lab slip (location and type of clasp, rest location, teeth being replaced, tooth shade)

Need to send:

- Master model
- Bite registration
- Lab slip (location of clasp, teeth being replaced, tooth shade)

Special tray  
(study model)

CLINIC

CLINIC

Mouth preparation

Final Impression

Conventional workflow

Elastomeric impression

Master Model

Acrylic partial  
denture

Mount the models  
on articulator

Tooth setting

Denture try-in

Processing

Insertion





Special tray  
(study model)

CLINIC

CLINIC

Mouth preparation

Final Impression

Conventional workflow

Elastomeric impression

Master Model

Impressions  
Study model with framework design  
Lab prescription

Co-Cr partial  
denture

Framework try-in

Survey  
Block out undercuts

Mounting of Master  
model on Articulator

Insertion

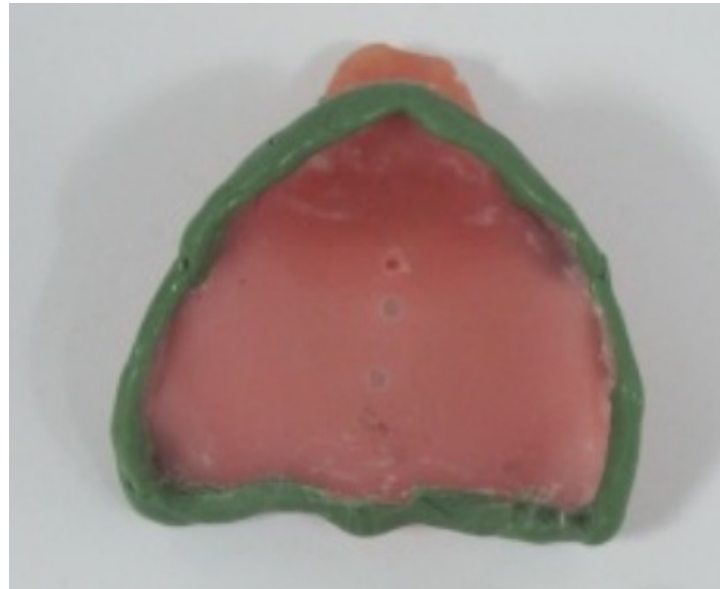
Cast Co-Cr framework

Tooth setting

Denture try-in

Denture processing

## Elastomeric Impression for framework fabrication



Thickness of the custom try  
border = 2-3mm

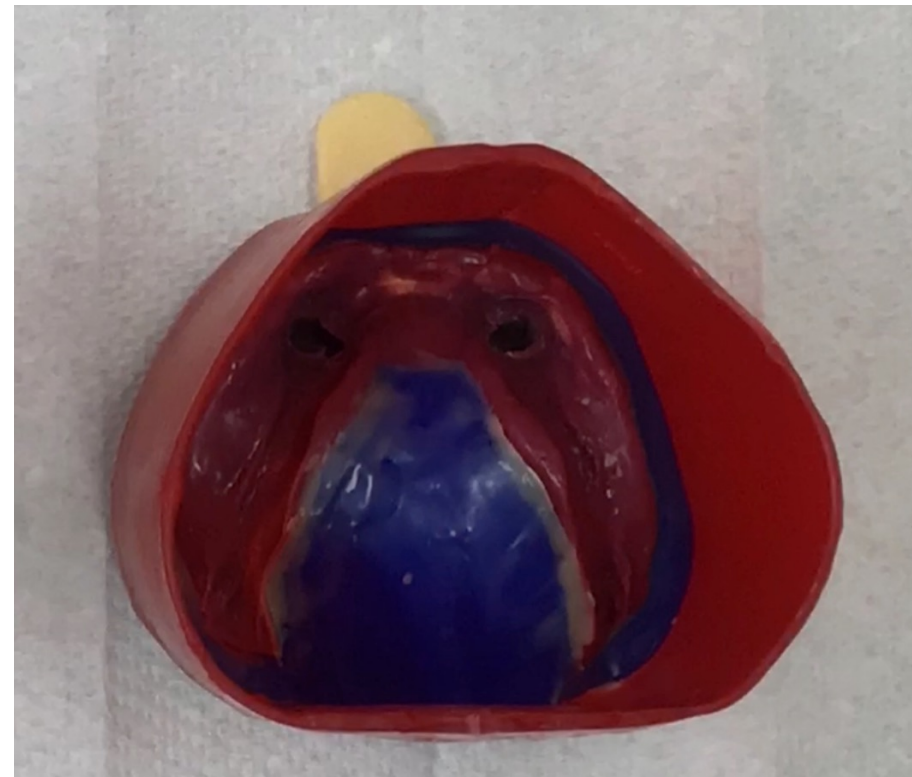
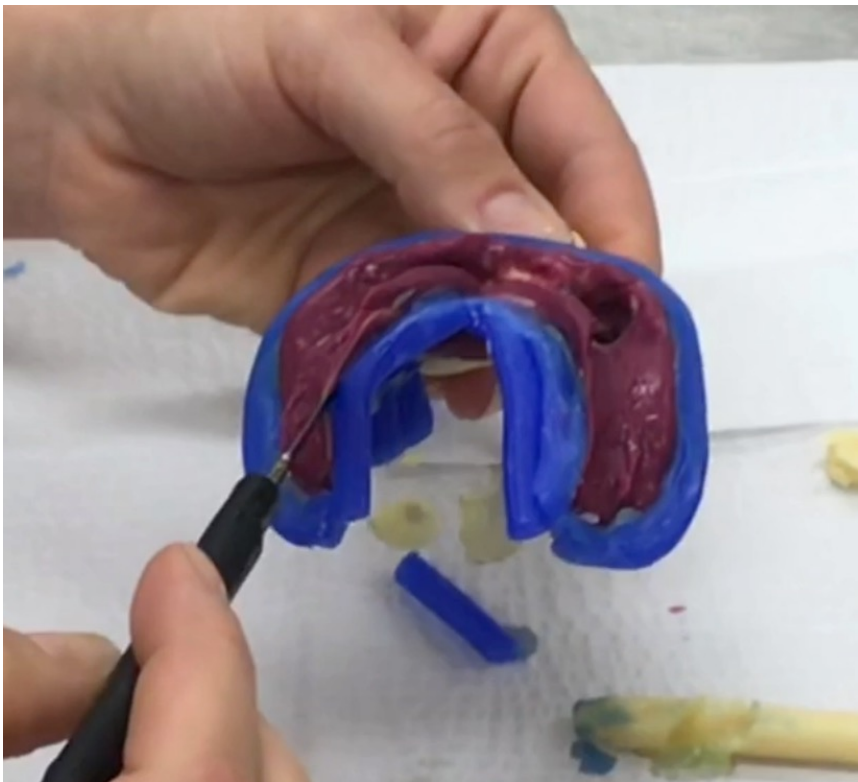


Watch the video "Partial Custom Try"

## Elastomeric Impression for framework fabrication



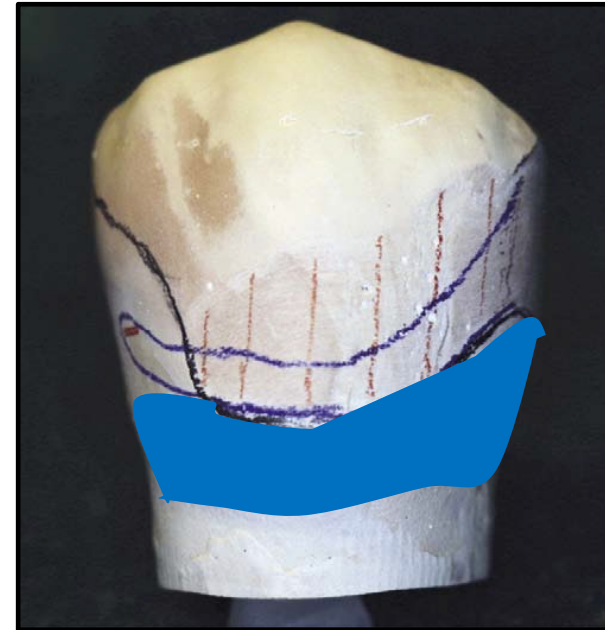
## Beading and Boxing the impression to pour up the master model



Watch the video "Beading and Boxing"

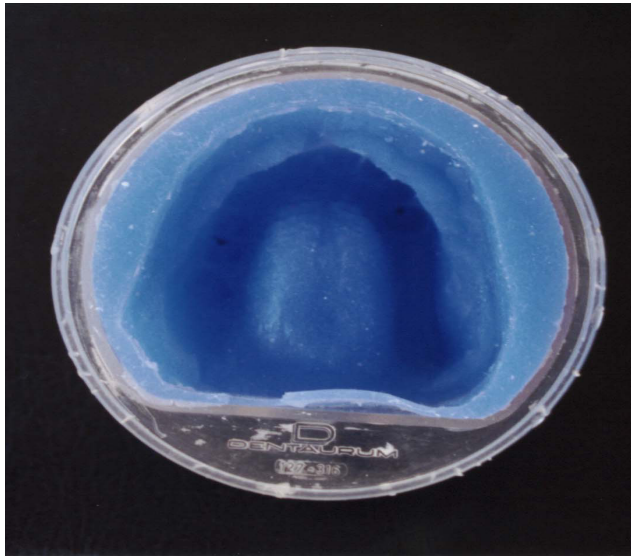
## MASTER MODEL

Duplicate the master model  
Surveying  
Block out undercuts

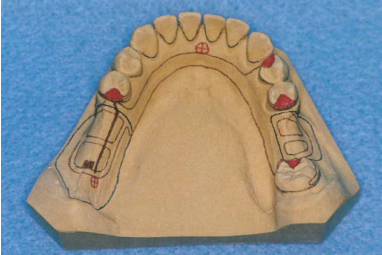


Duplication of master model after the block out of undercuts and reliefs

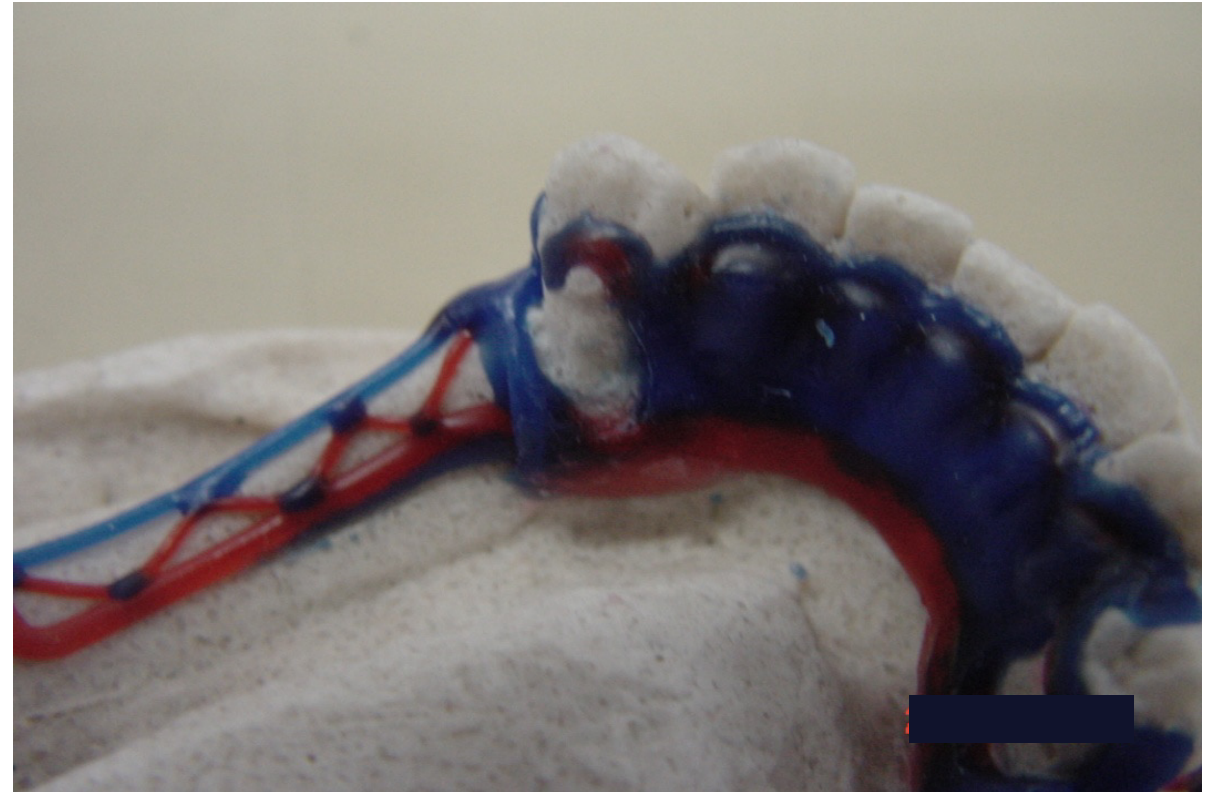
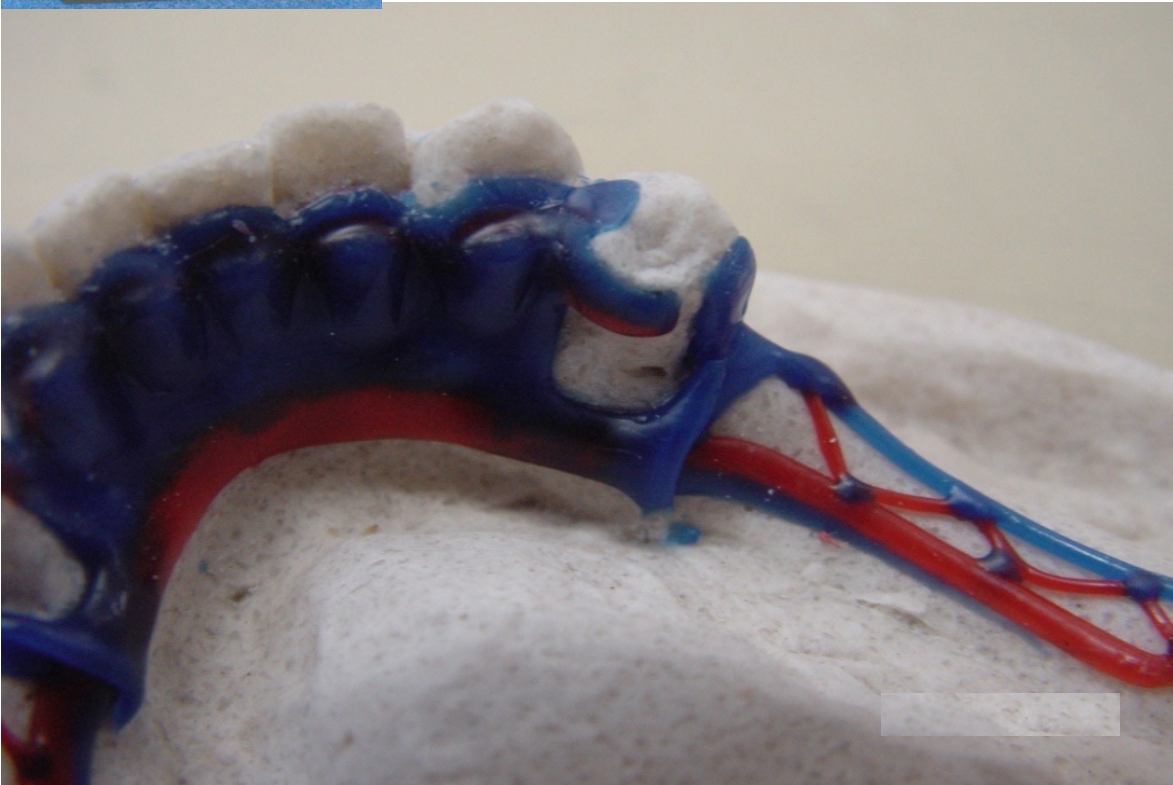
↳ Investment model for the framework fabrication



Watch the video "Duplicating"

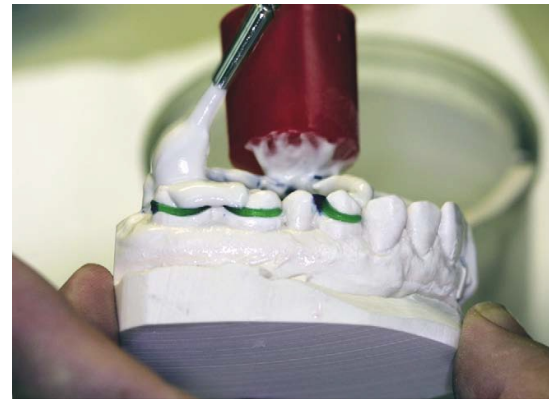


## Waxing the RPD framework (on investment model)



# Casting of RPD framework

## Spruing



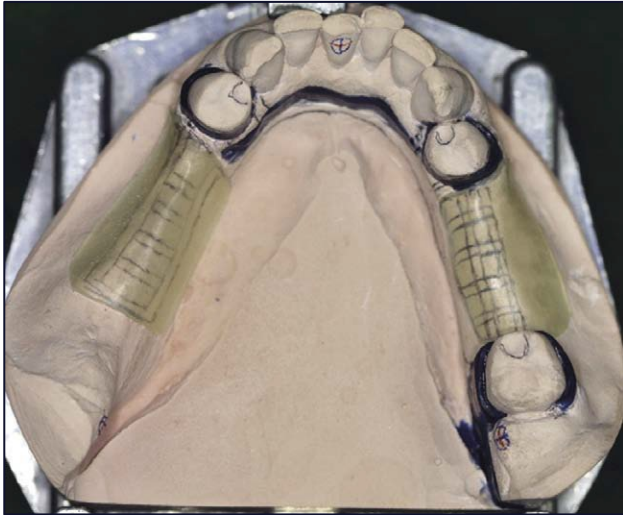
## Burnout technique



## Casting of RPD framework



## Casting of RPD framework



Blockout of the master cast



Wax pattern on investment model



Cast framework on the duplicated master cast

## FRAMEWORK TRY-IN

### Assessing the Cast framework off the model

- Defects on the tissue side of the framework,
- Check for abraded areas on the master cast;
- Assess the smoothness of the framework;
- Check for adequate thickness.



## FRAMEWORK TRY-IN

### Assessing the Cast framework on the master model

- Verify if the framework follows the design that you created
- Check the seating of the framework on the master model
- Check for proper adaptation and placement of clasps
- Check the ease of framework removal



## FRAMEWORK TRY-IN

### Assessing the Cast framework in the mouth

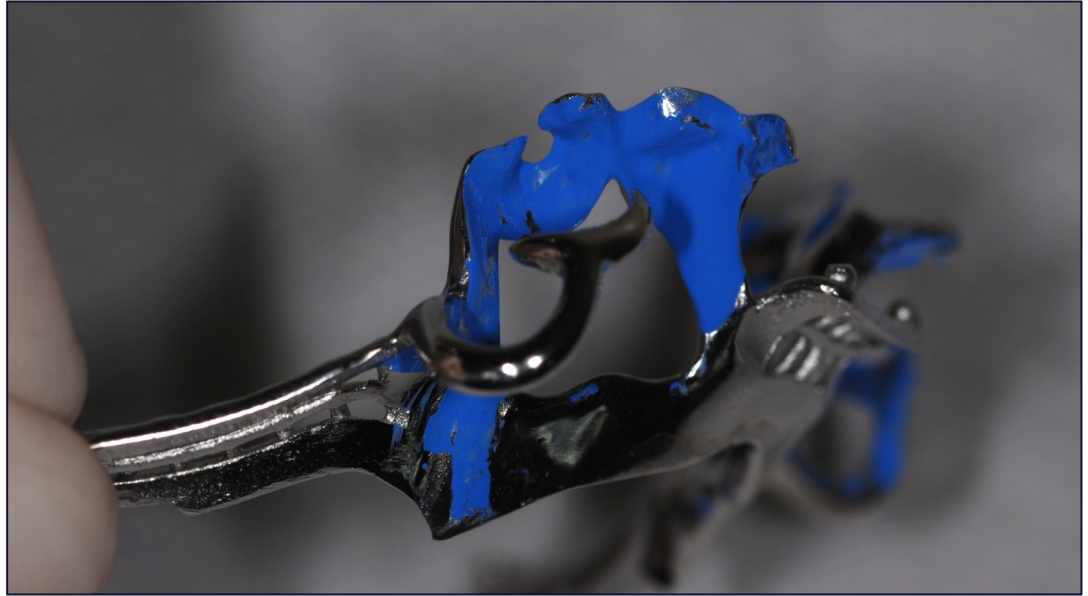
- Seating of the framework in the mouth: **PASSIVE SEATING**
- Fully seated on rest seats with clasps in the correct position
- Retention and stability
- Relationship with soft tissue



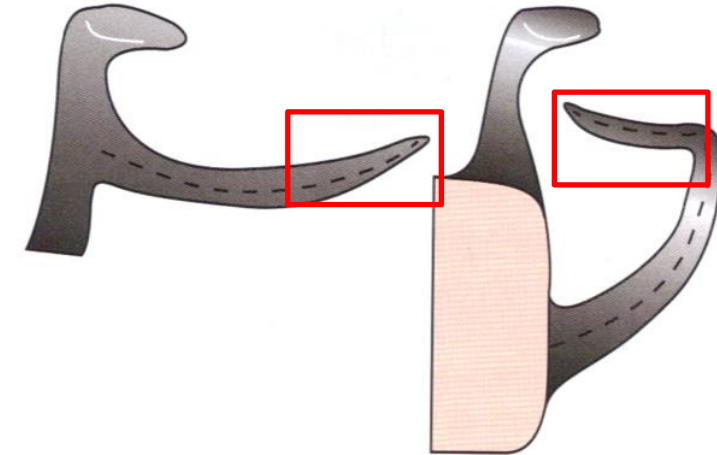
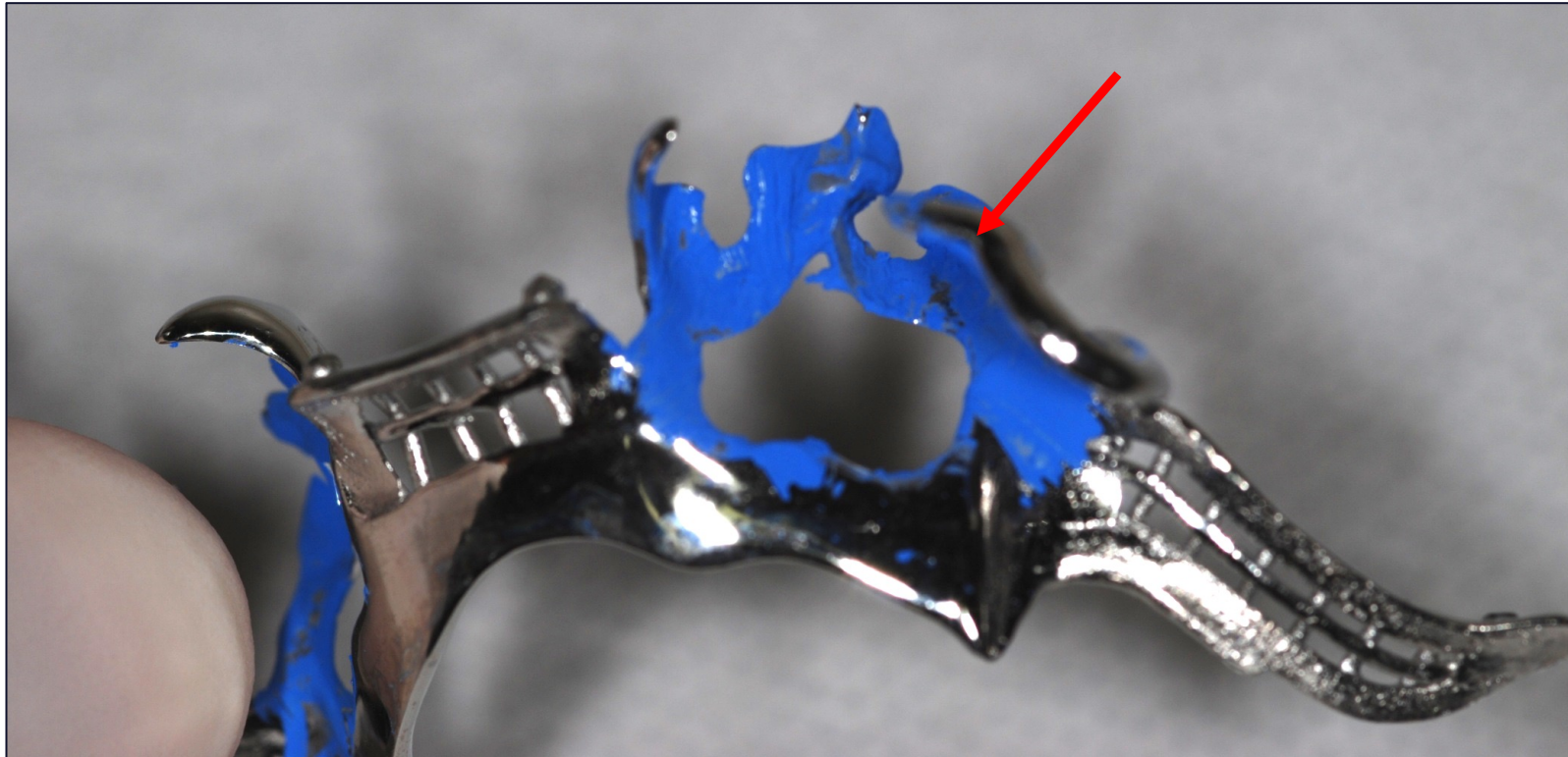
# Framework adjustment



# Framework adjustment



# Framework adjustment



- Minor connectors
- Reciprocating arm
- 2/3 Retentive arm

Never the final 1/3 of the Retentive arm

# Framework adjustment

## Occlusion interferences

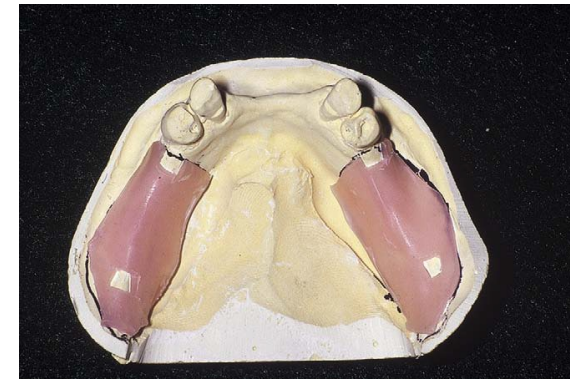


## Maxillo-mandibular relationship

- Add acrylic base to saddle region
- Connected to the framework

## Mount master model

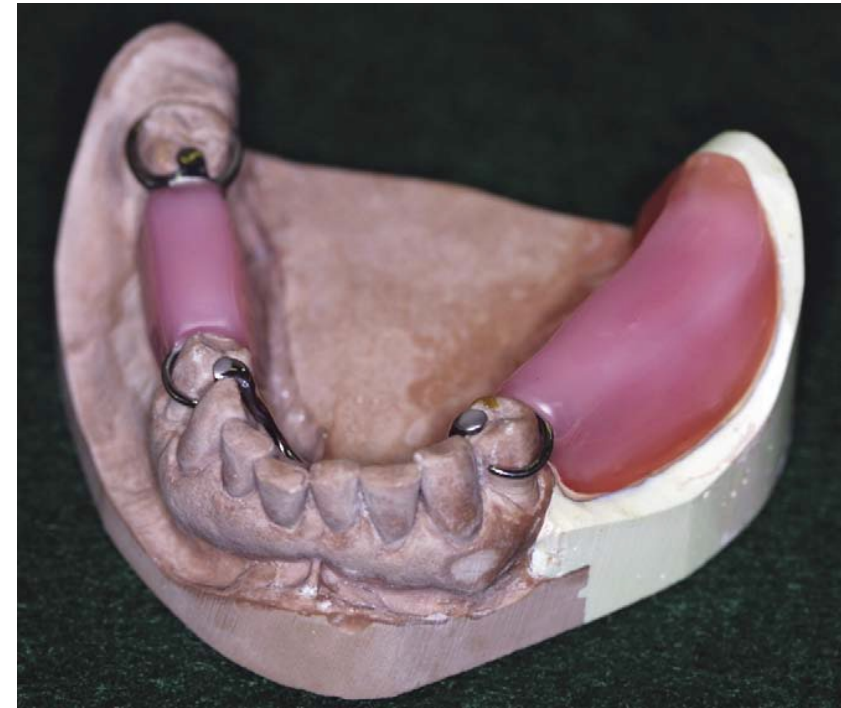
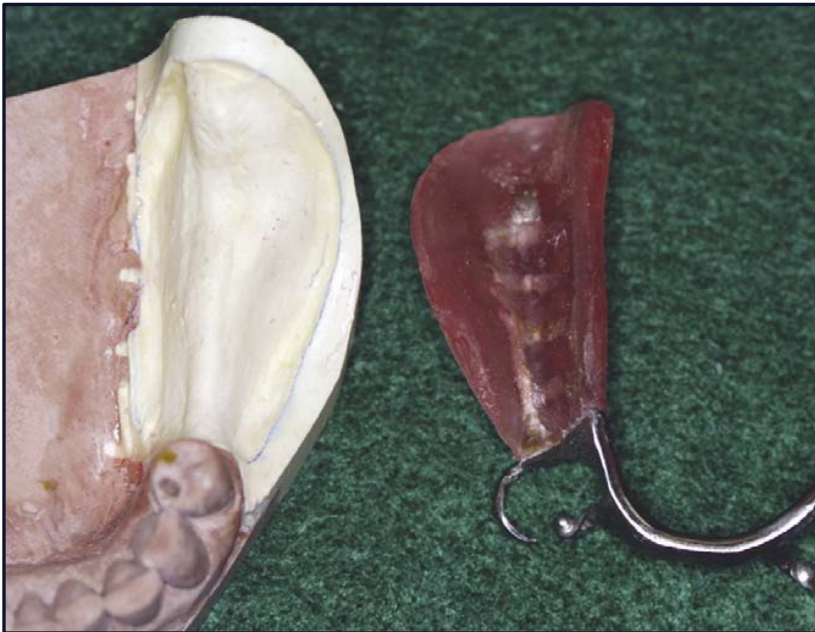
- Cl I, II, extensive IV



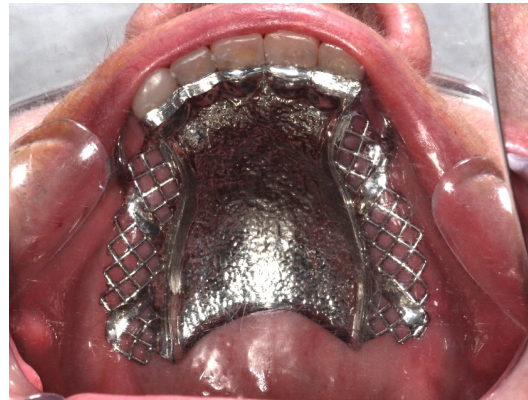
## Maxillo-mandibular relationship

### Mount master model

- CI I, II, extensive IV

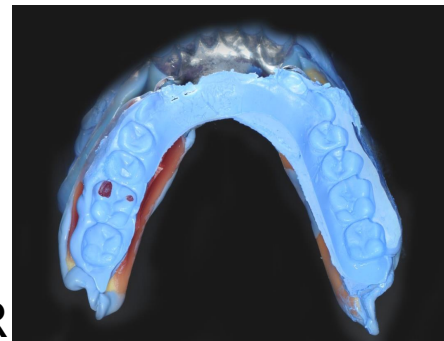
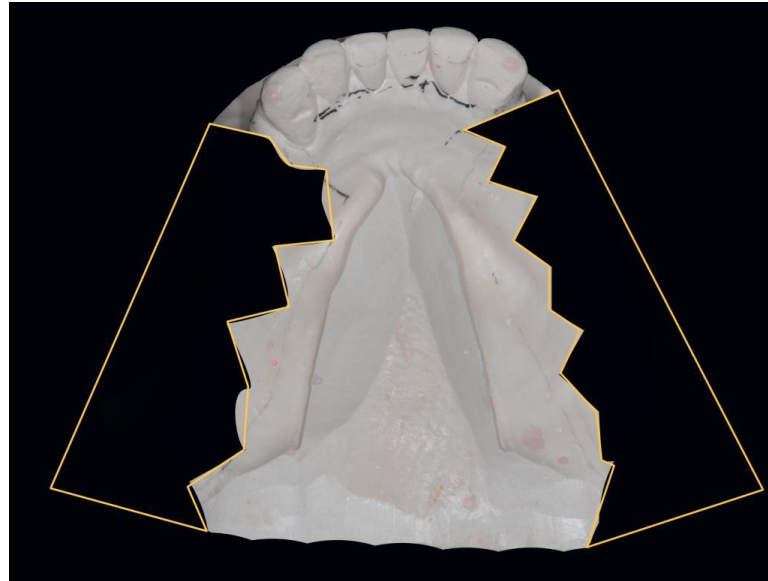
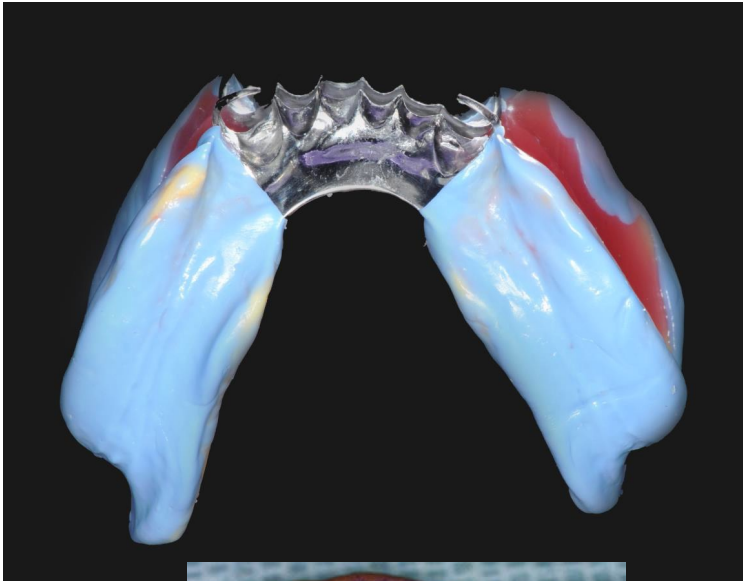


# Maxillo-mandibular relationship



# Altered Cast Technique

## Mandible CI I and II



MMR

Prof Hotinski photos

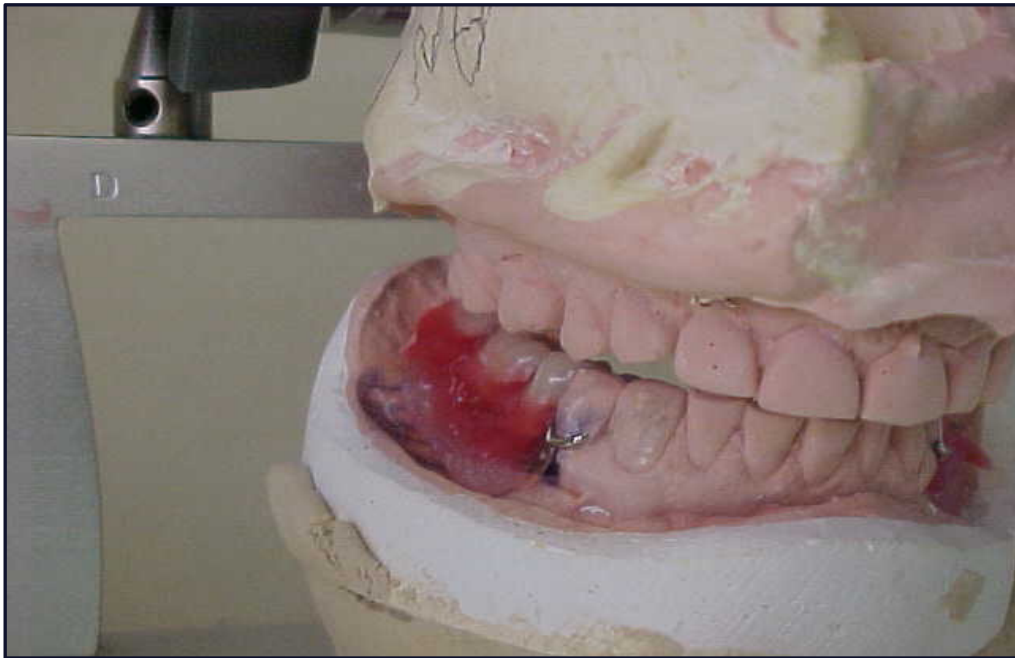
## Altered Cast Technique

### Altered cast impression technique

- Use putty for border molding and light body material to copy the free end saddle ridge
- Finger pressure is applied only to the rest, never the free end saddle area (tray)
- Ask the patient to make the movements with the tongue and retract the cheeks to copy the soft tissues in function (always keep the finger pressure to avoid dislodgement of the framework).
- Framework must remain stable until the complete set of impression material.

## Maxillo-mandibular relationship

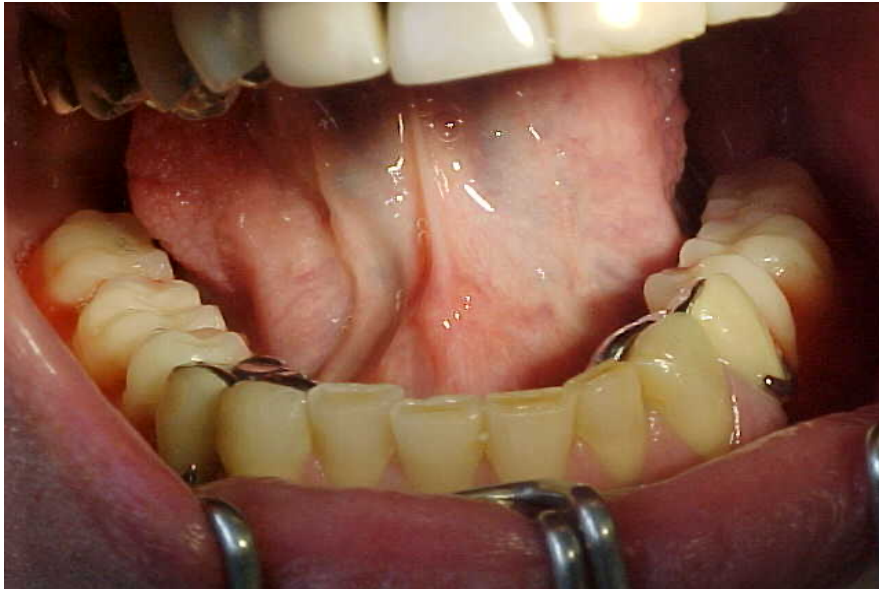
Arranging teeth and waxing the denture base.



## Maxillo-mandibular relationship

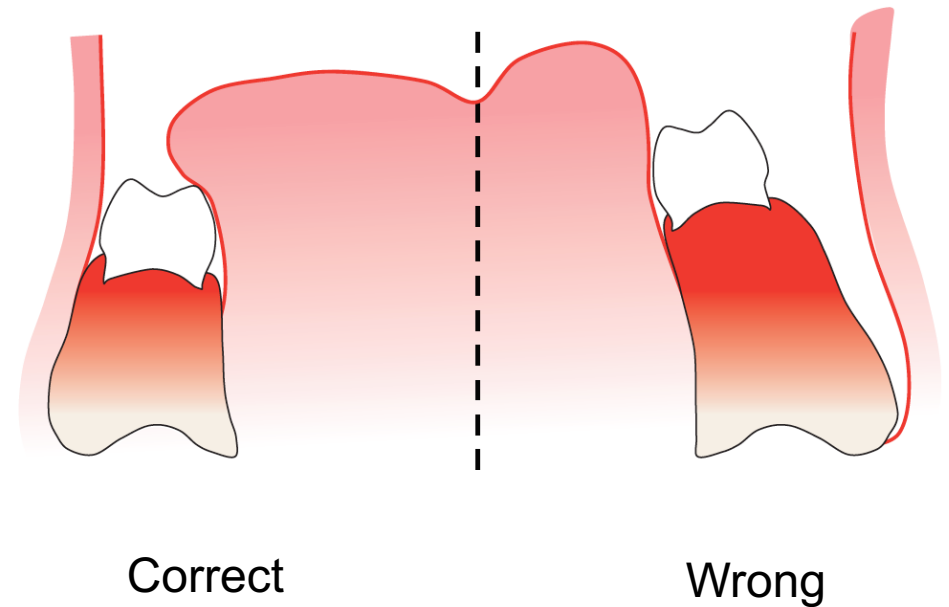
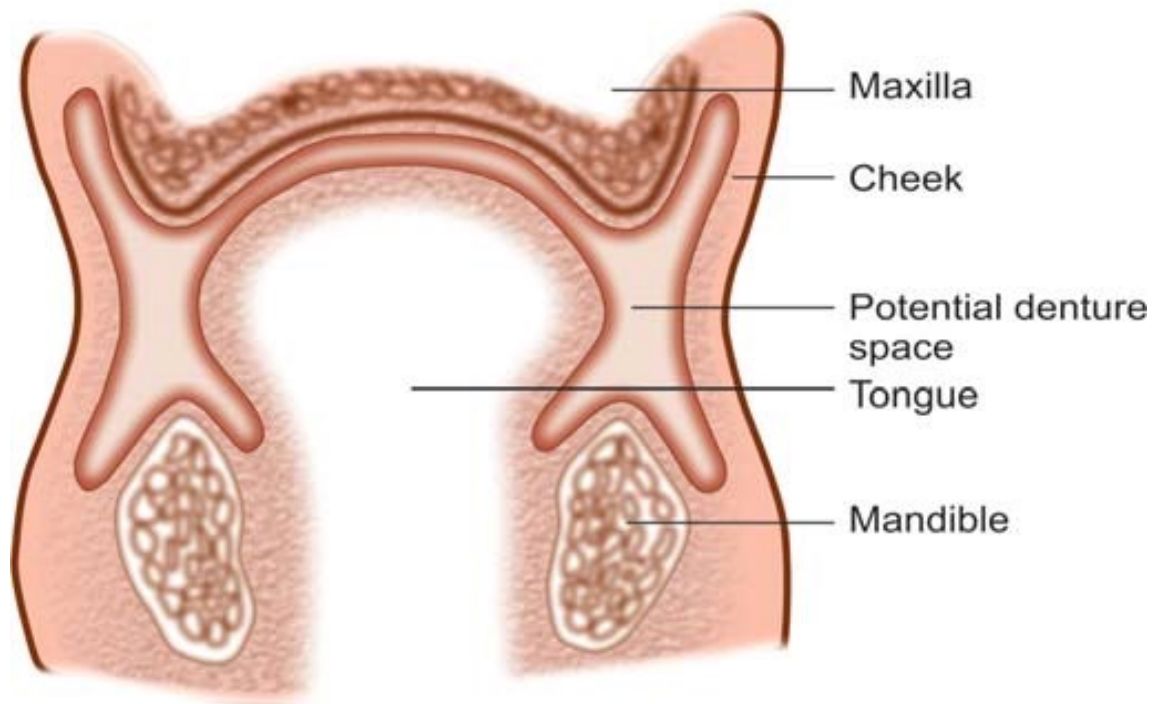
### Try-in

- Evenness of occlusal contact
- Occlusal vertical dimension
- Appearance
- Relationship to the neutral zone.



## Maxillo-mandibular relationship

Neutral Zone: space where the forces exerted by the **tongue** are equal and balanced with the forces exerted by the **buccinator muscle** (posterior) and the **orbicularis oris muscle** (anterior).



# Processing the denture



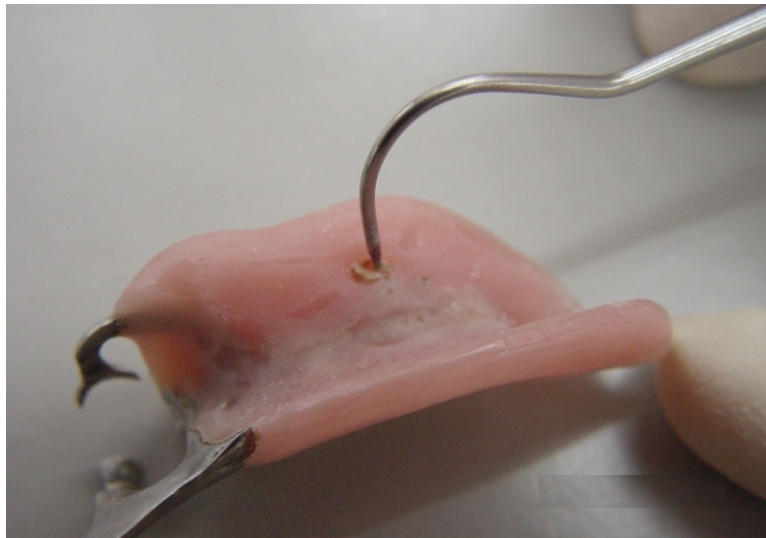
Watch the video "Denture processing"

## RPD insertion



# RPD insertion

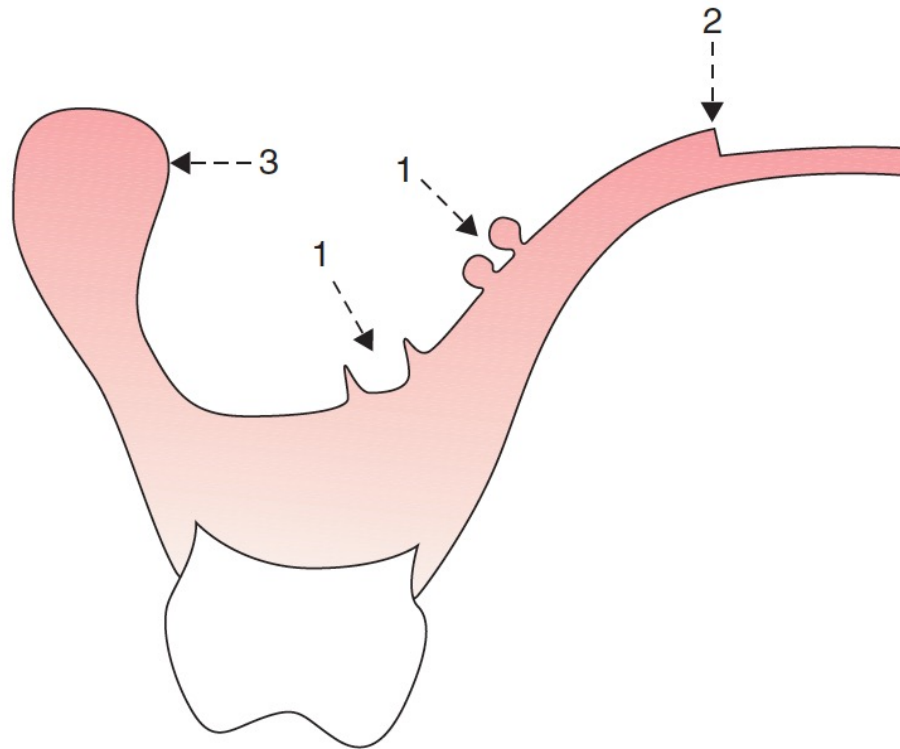
Defects on the denture base



Voids, porosity

# RPD insertion

Defects on the denture base



- 1 – Sharp projections and acrylic nodules
- 2 – Sharp edges
- 3 – Overextension into bony undercuts



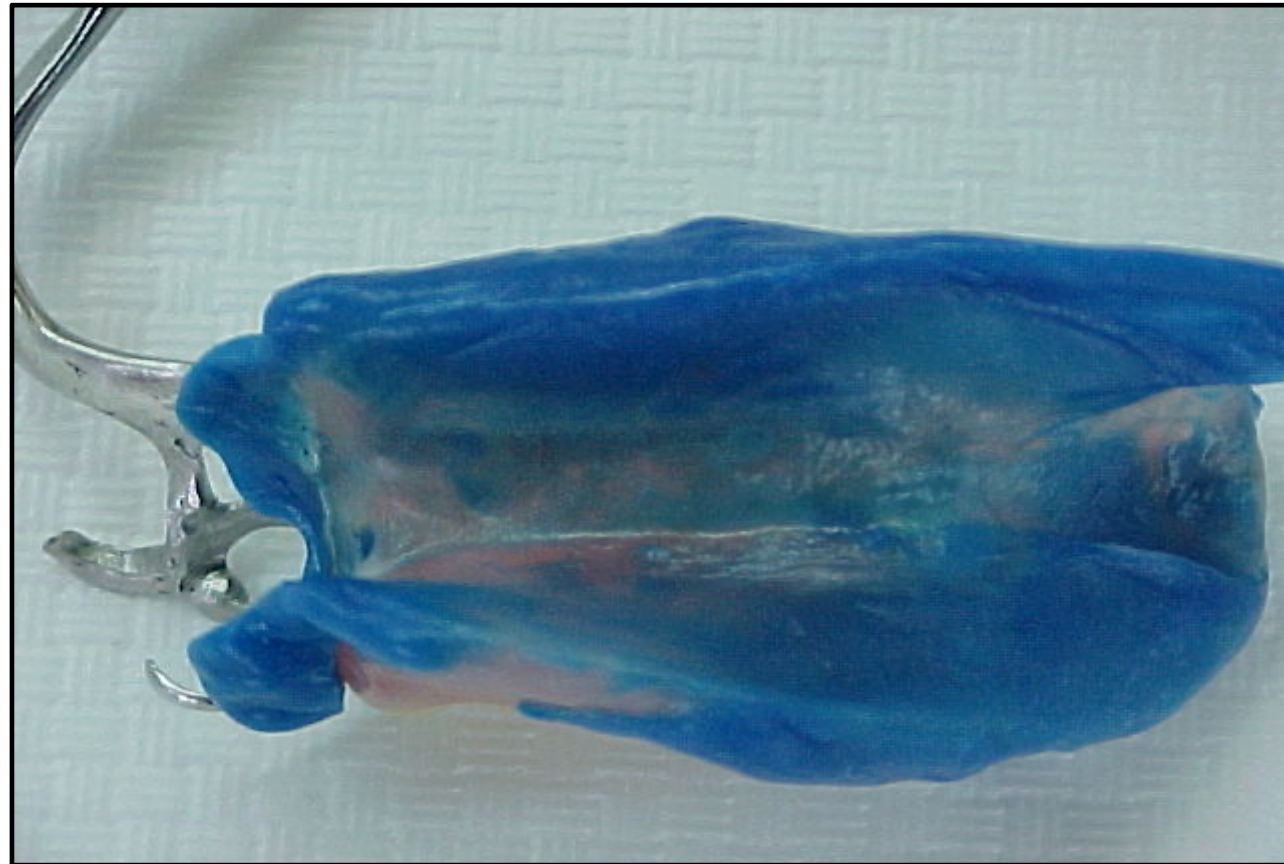
**PAIN**

## RPD insertion

- Physical retention
- Stability
- Extension of the denture bases (Over extension and under extension)
- Occlusal contact
- Occlusal vertical dimension
- Appearance

# RPD insertion

Adjustment of the saddles



Denture is not well adapted to the alveolar ridge

- Reline of the denture base  
Mandibular class I and II

Pick up  
impression



## Occlusal contacts are inadequate

- Open bite in the edentulous area (teeth are below the occlusal plane)
- High OVD (teeth are too high)



Bite registration

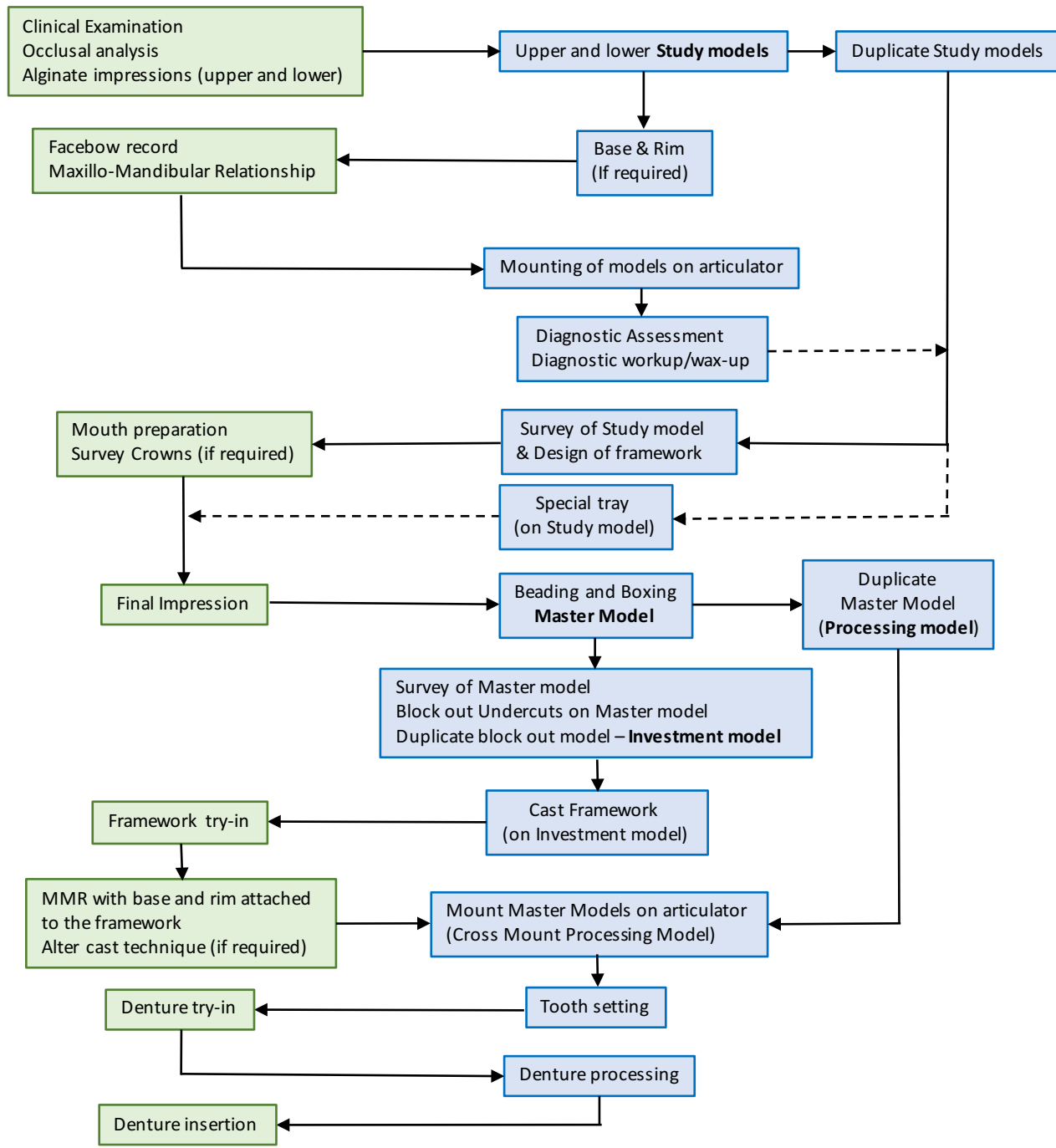


Pick-up impression



## Clinic

## Laboratory



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# Workflow for Co-Cr RPD



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Thank you