Prosthetics II.

Fixed dentures

Inlay, root canal inlay

Fixed dentures

- Cemented (fixed) on/in pilots, abutment teeth.

- Inlays (inlays, onlays, overlays, partial crowns).
- Crowns
- Bridges

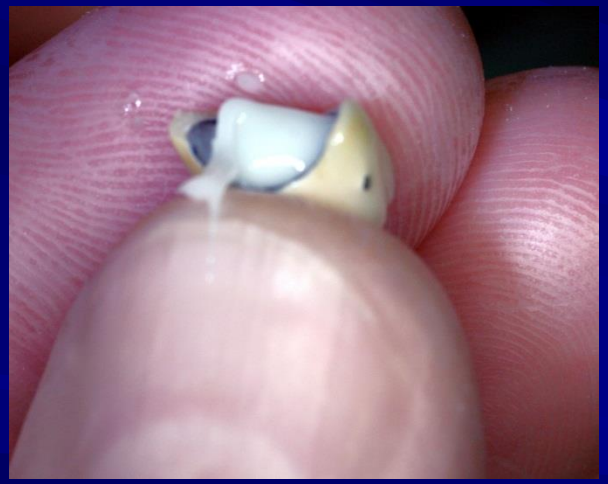
Inlays

Composit, cermic

Metal

Fixed dentures

- Cemented on the teeth – crowns, bridges, inlays



Fixed bridge

Fixed dentures

- Material – metal alloy, ceramics

Removable dentures

- Partial
- Complete (full)

Removable dentures – partial, complete

Procedures

- In dental surgery
- In dental laboratory
- Special instruments
- Basic (main) materials

(metal alloys, ceramics,polymers)

- Auxilliary (accessory) materials

(impression, carving, die, insulating investing, grinding, polishing)

Manufacturing of dentures

Model of gypsum (plaster) – model of a denture (wax pattern).

Model of a denture (wax pattern) directly in the mouth – rarely.

Denture is formed without a wax pattern in the dental lab.

Manufacturing of dentures

Model of gypsum (plaster) – model of a denture (wax pattern).

Impressions of the jaw - negativ

The impression is filled with a casting material (gypsum) – poured into

Model
(various purpose)

Models

- Working model – the denture is produced on this model (special procedures)
- Opposing model (antagonal) - necessary for the recognition of intermaxillary relationship
- Bite regitration - wax

Manufactoring of dentures principle of lost wax method

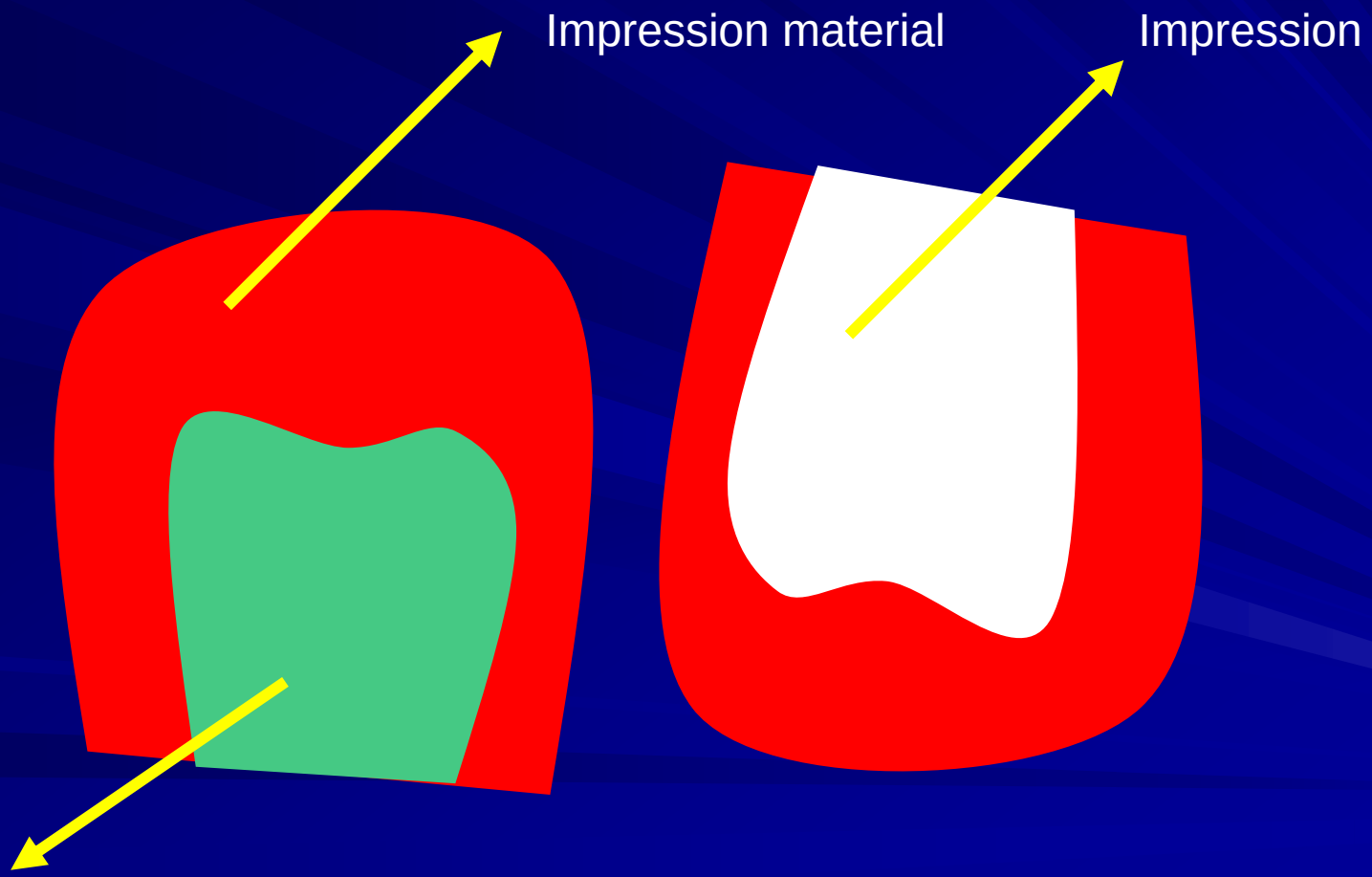
- The denture (not the denture itself but the model of the denture) is produced on the working model.
- The model of the denture is made of the carving wax.
- The wax is replaced by the main (base) material.

Fabrication of dentures

The model (wax) of the denture is invested

The wax is removed from the form and the base material is placed into the form.

Wax removal:
The wax is burned out (for metal alloys)
or removed by hot water (for polymers)



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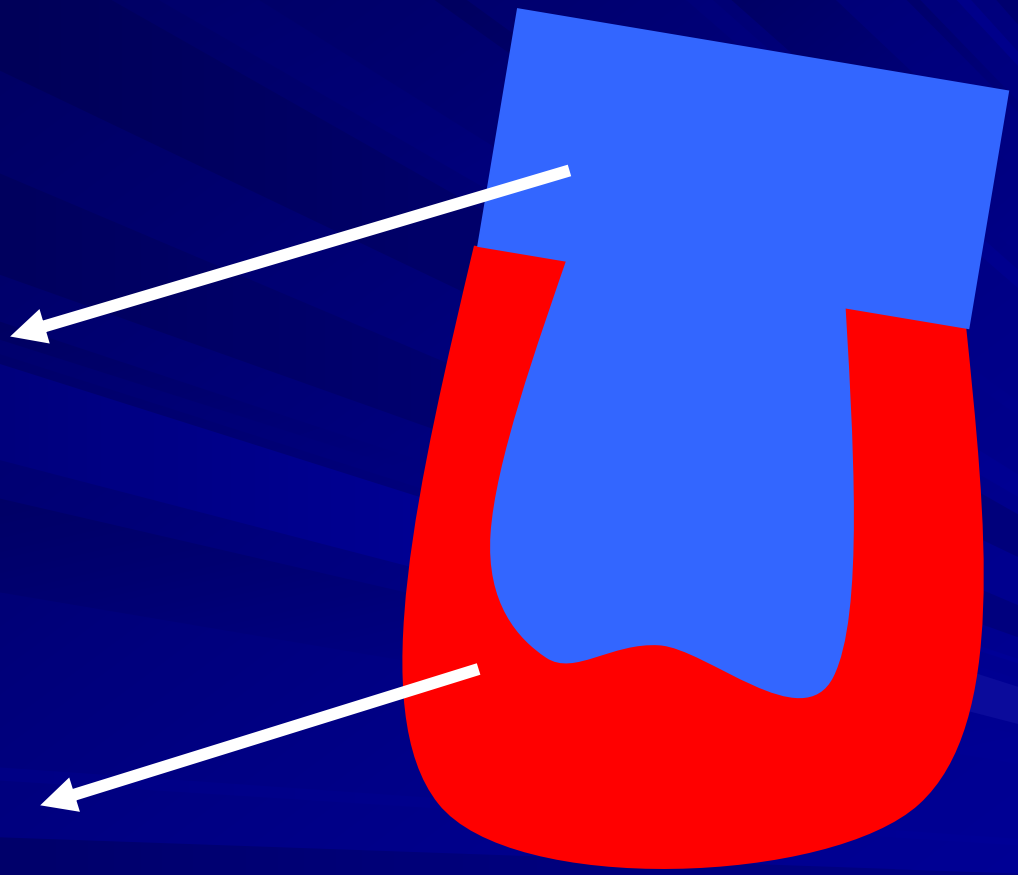
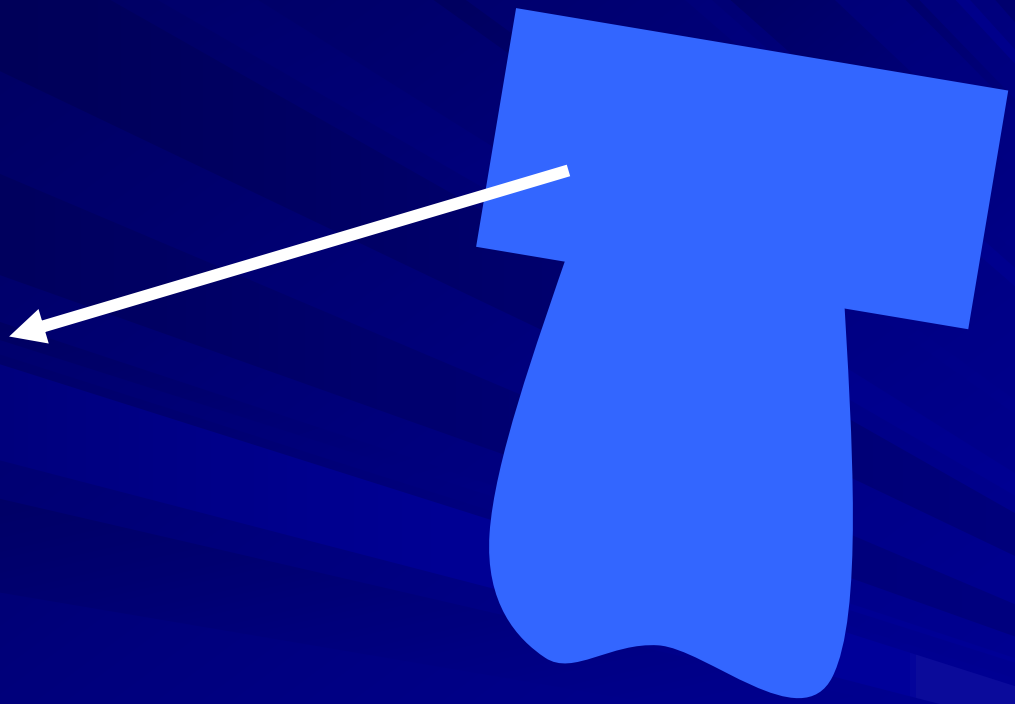
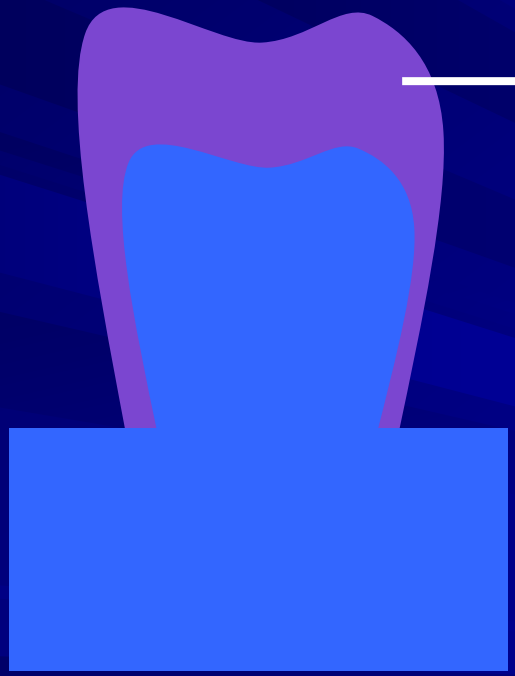
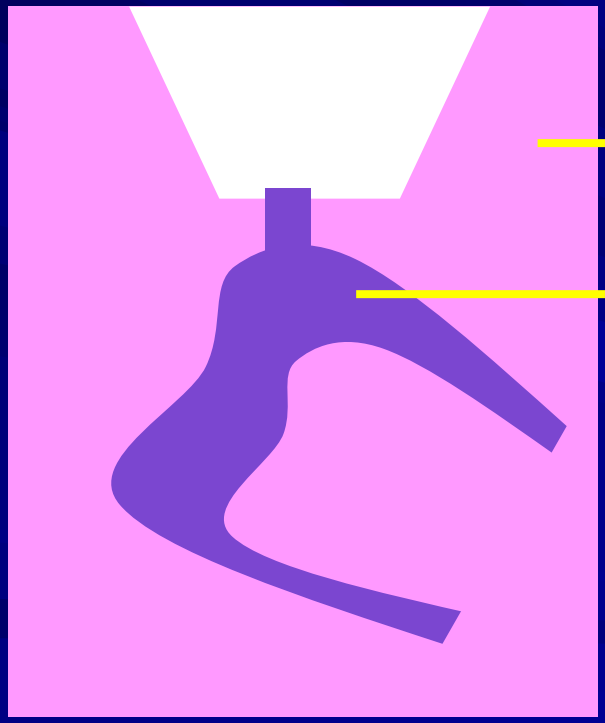

Gypsum
Impression


Plaster

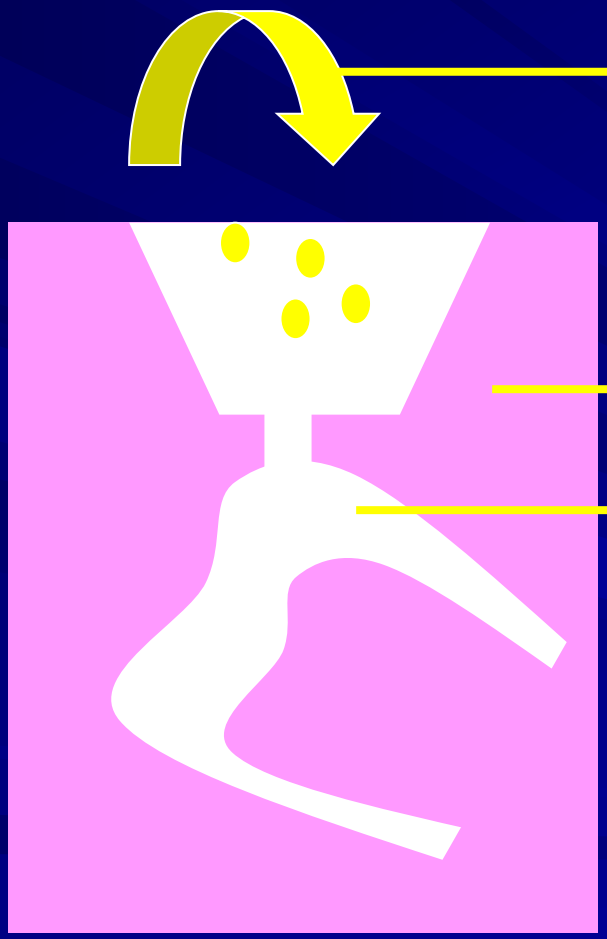


The model (wax pattern)



The investing material

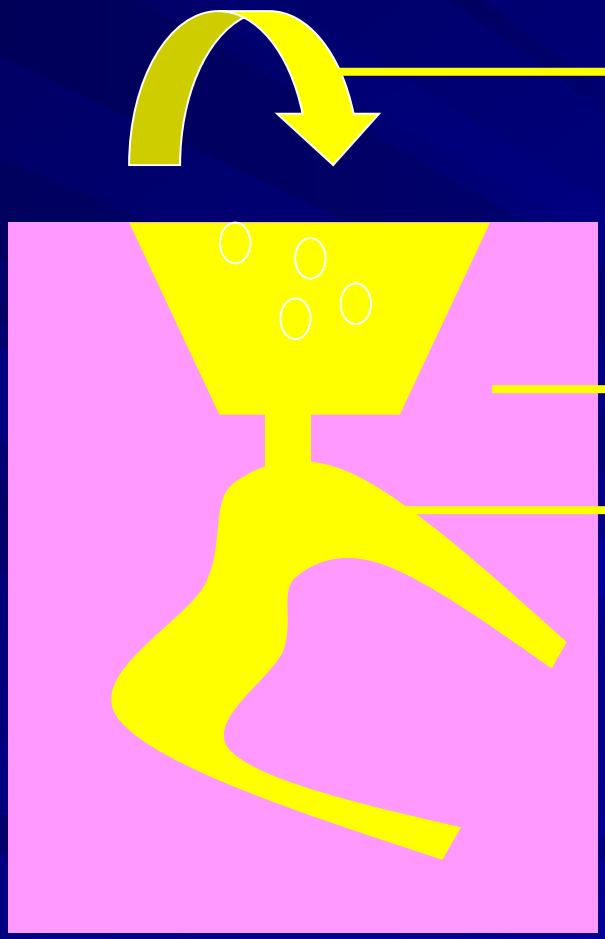
The model
(wax pattern)



The melted alloy

The investing material

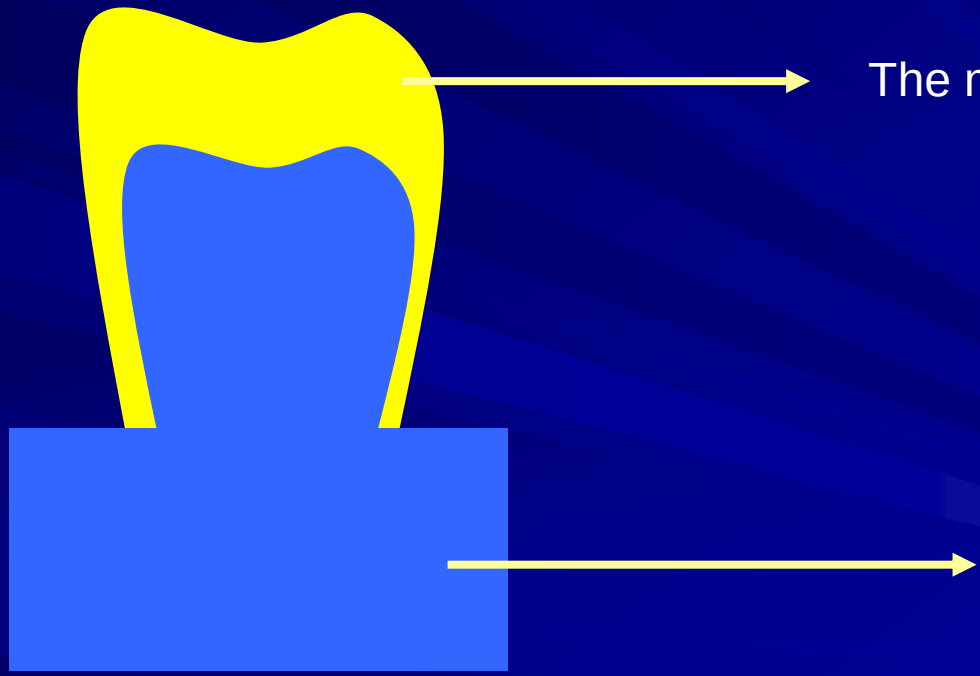
The form



The melted alloy

The investing material

The crown


The metal crown
Plaster

Manufacturing of dentures

The method described above = indirect method

Manufacturing of dentures

Direct method

Manufacturing of dentures

Direct method

No impression

The model of the denture is made directly in the mouth

For inlays only

Inlays

- Rigid fillings
- Manufactured in a dental lab
- Direct or indirect method
  - Direct method rarely
  - Indirect method most common

Inlay

- Crown inlay

- a part of a clinical crown is replaced

- Root canal inlay

- The inlay is cemented into the root canal and replaces a crown (abutment tooth – stump, snag)

Crown inlay

Material

- *Composit*
- *Ceramics*
- *Metal Alloys*

Angle of convergence

- 0° - maximum
- 6° - very good
- 15°- acceptable
- 20° - insuficient

Optimum 6° - 15°.

Crown inlays

Indikations

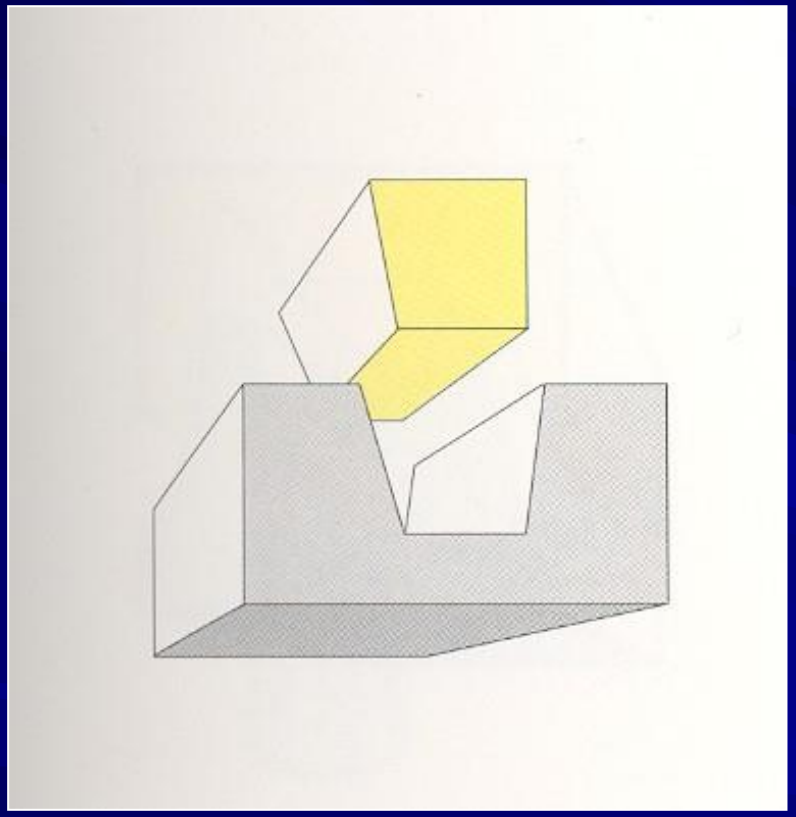
- A big lost of dental tissues
- Big interdental spaces
- Next to the crowns and bridges made of metal alloy

Crown inlays

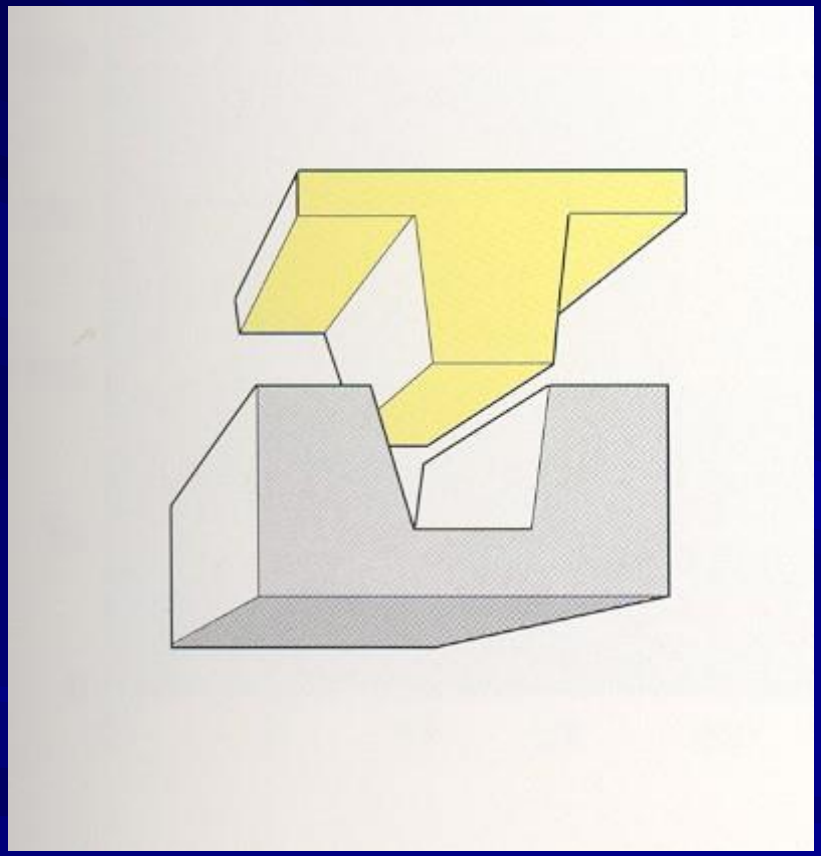
Contra - indication

1. *Too small - shallow (flat) cavities*
2. *High caries risk*
3. *Frontal area (metallic)*

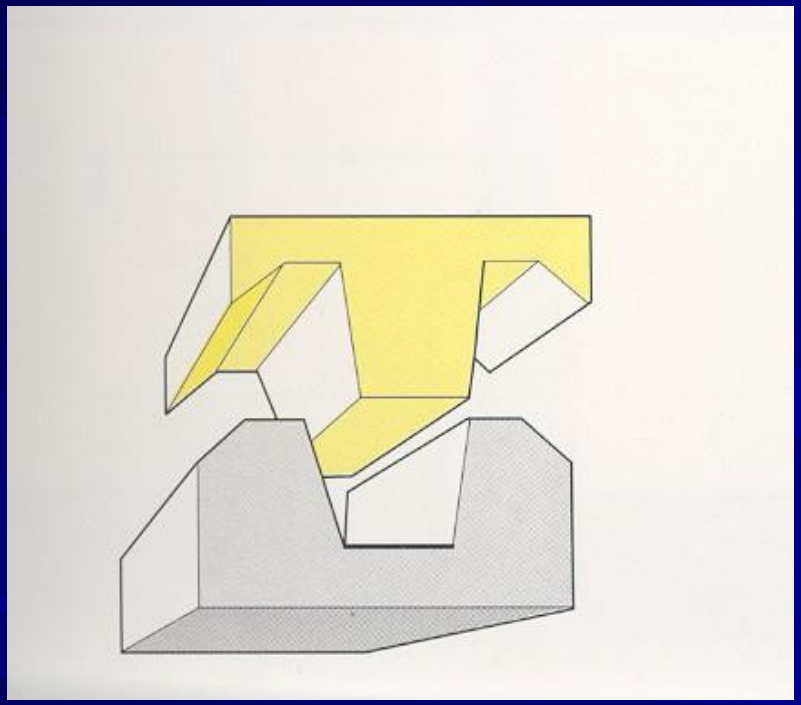
Inlay



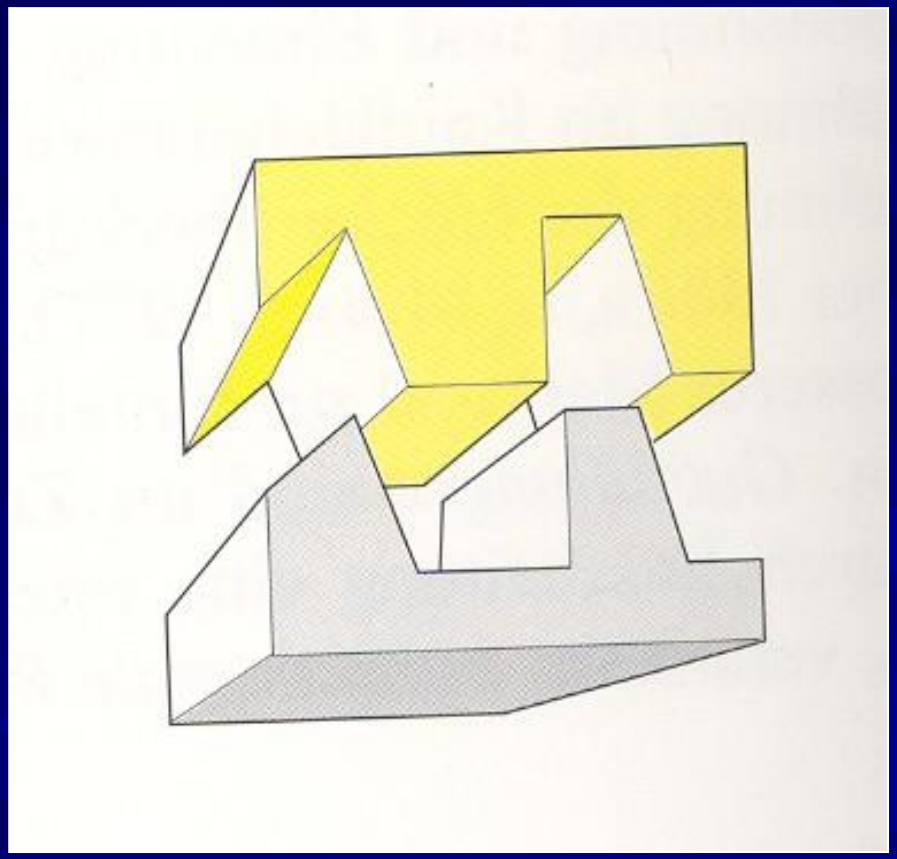
Onlay

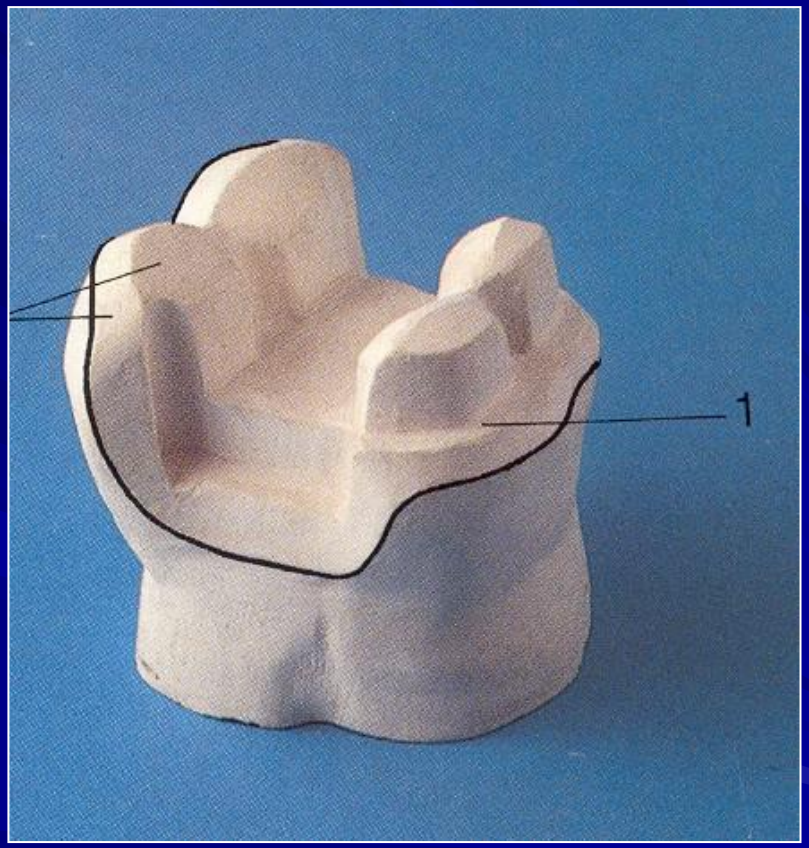


Overlay

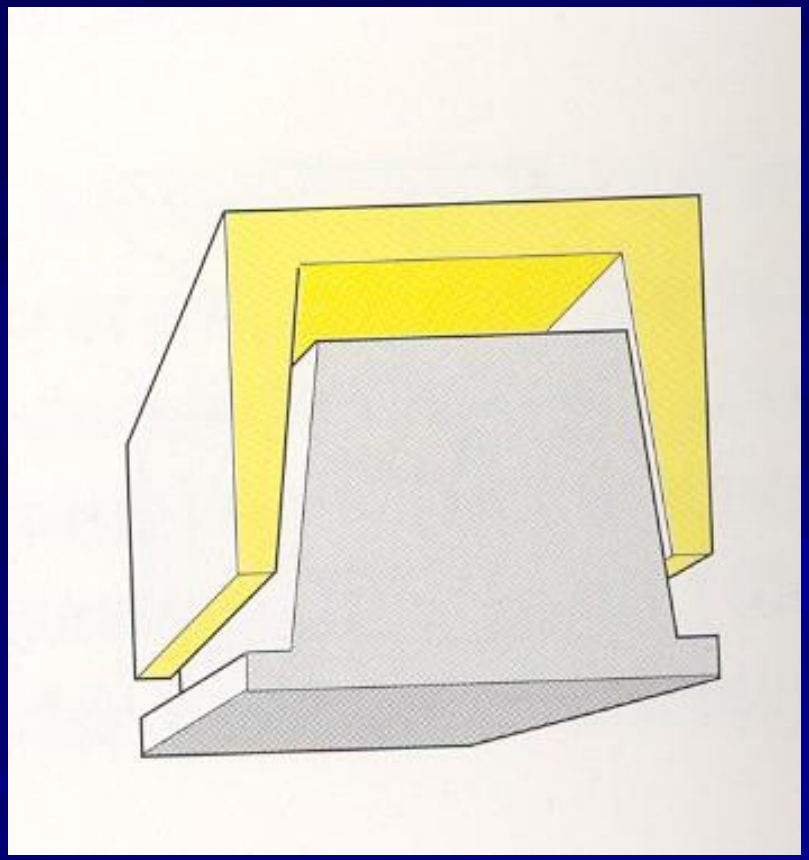


Partial crown





Crown

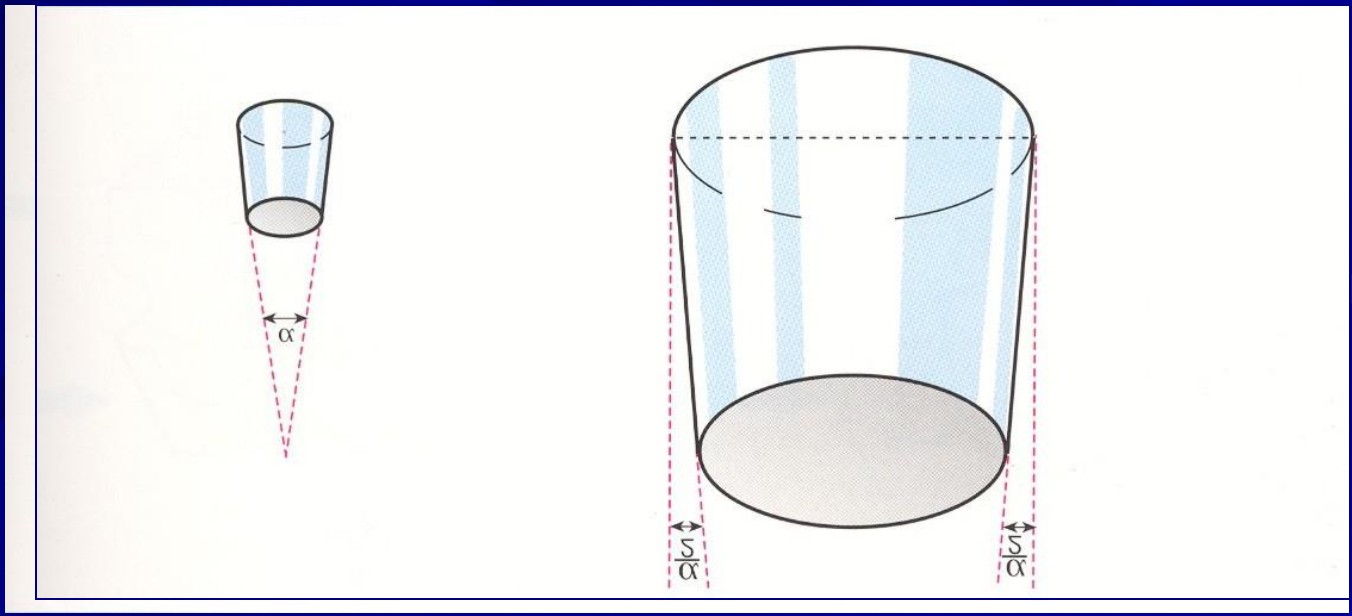


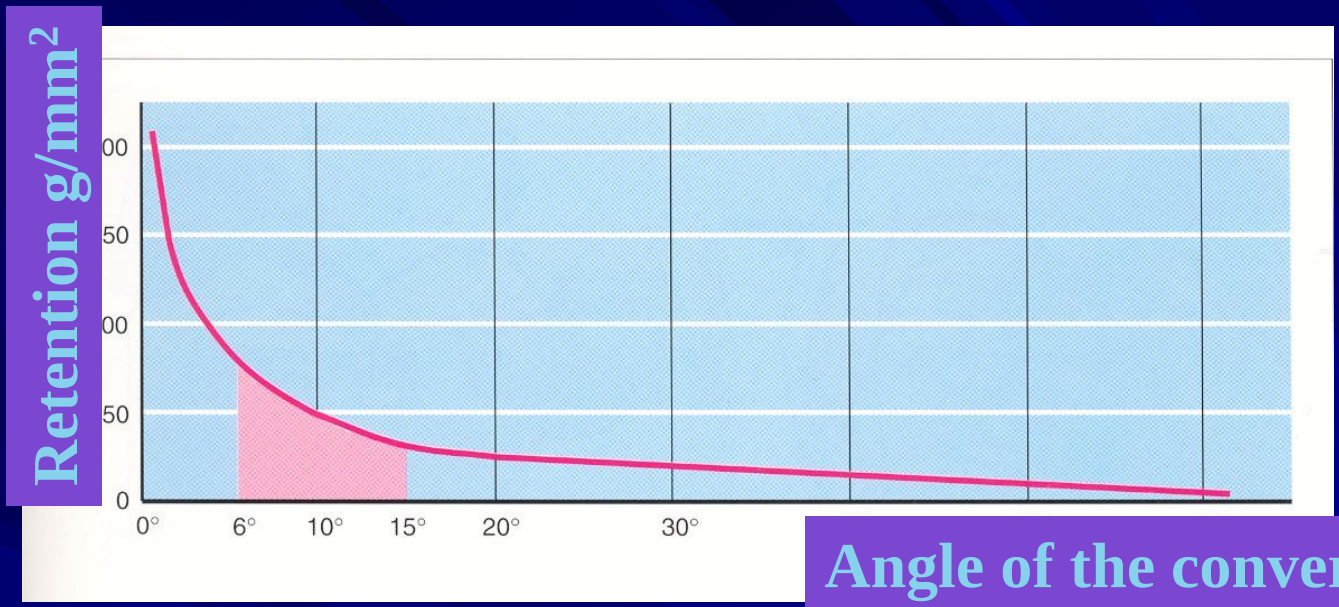
Retention of rigid fillings

Whitstand capability against axial forces:

Geometry of the preparation *(facilitating shape)*

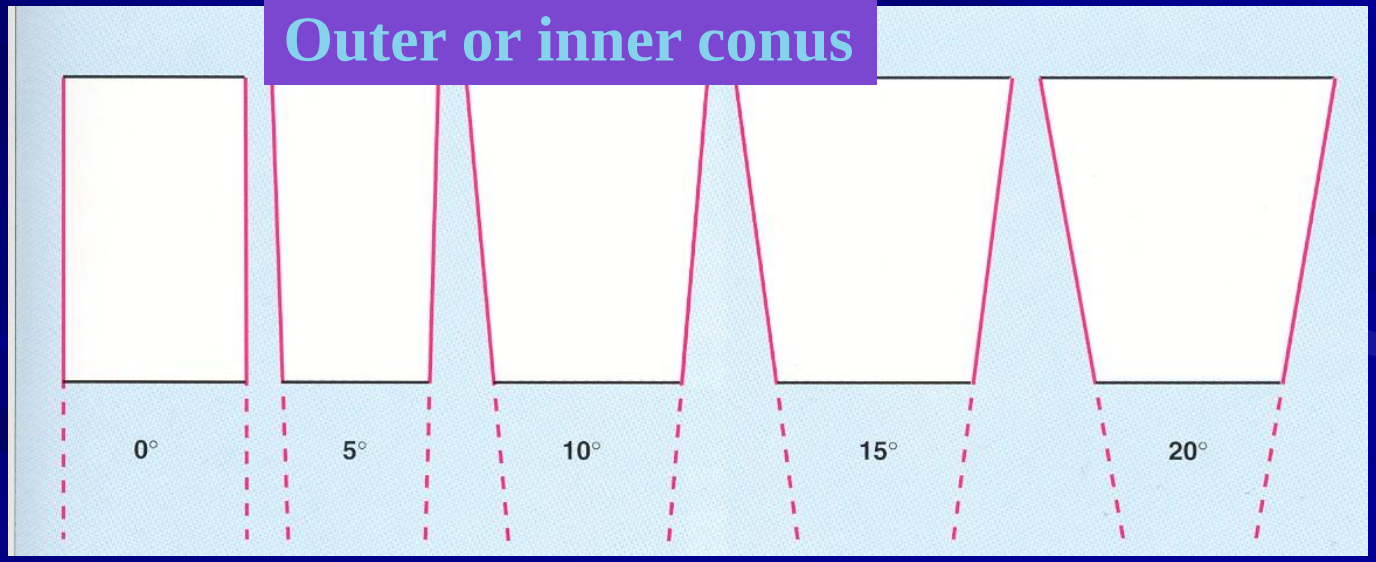
Quality of the luting material





Angle of the convergence

Outer or inner conus



Rau G. 1994

Retaining areal

- Surface of contact

Rigid filling

Inlay or crown (internal, outer, combined)

Stability of rigid fillings

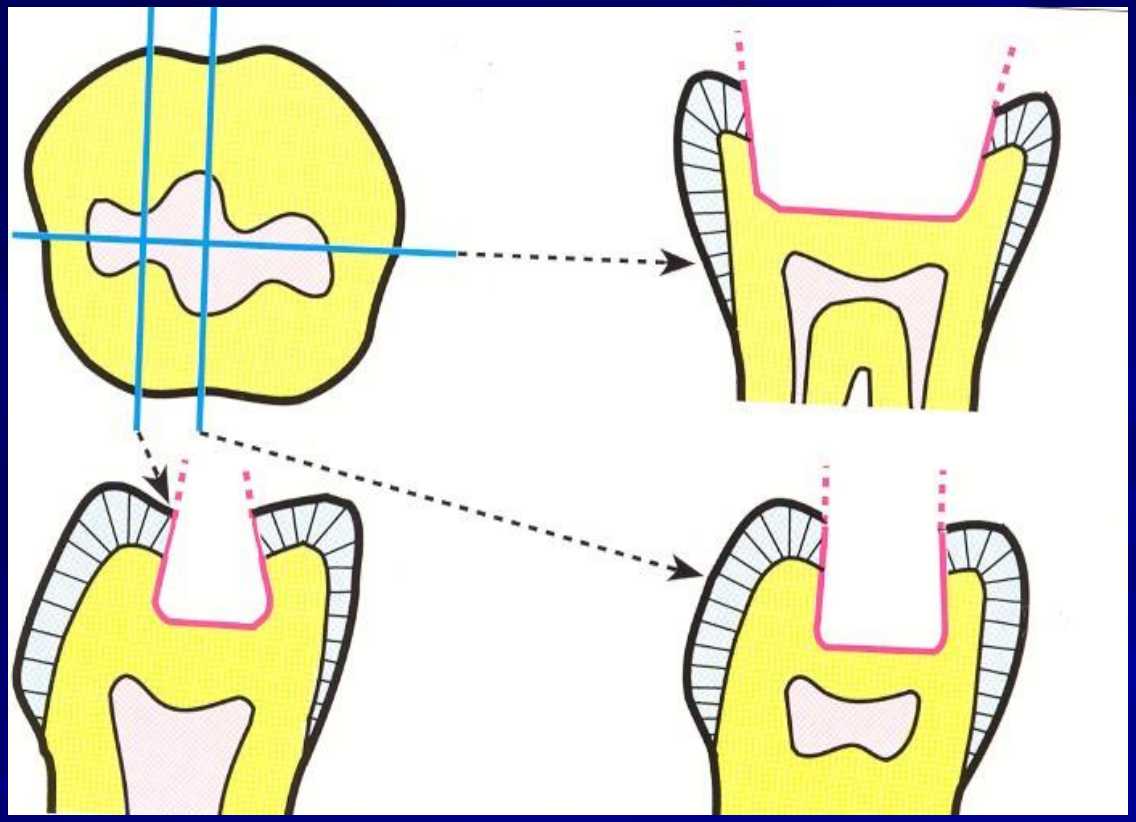
Whitstand capability against horizontal forces

Angle of convergence

Axial length contact surface

Basic rules of cavity preparation

- Box
- No undercuts
- Light divergence of the walls (facilitating shape)



Box

Undercuts

Simple box

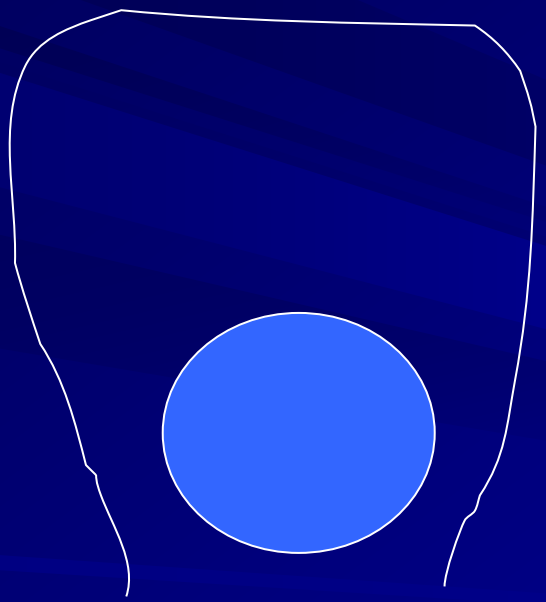
Facilitating form

Inlay of metal alloy

- Direct method
- Indirect method

Inlay of metal alloy

- Direct method



Direct modellation in the mouth
Special wax – casting wax, (special polymers)
Sprue pin
Investment
Method of the lost wax

Inlay of metal alloy

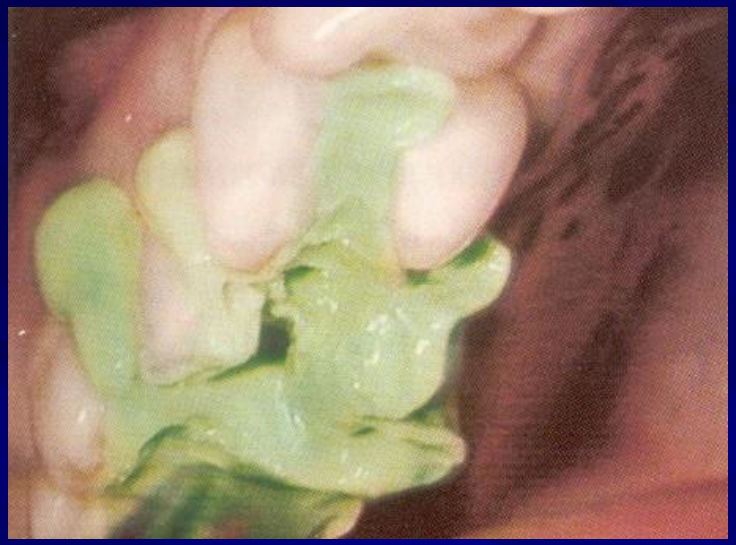
Direct method

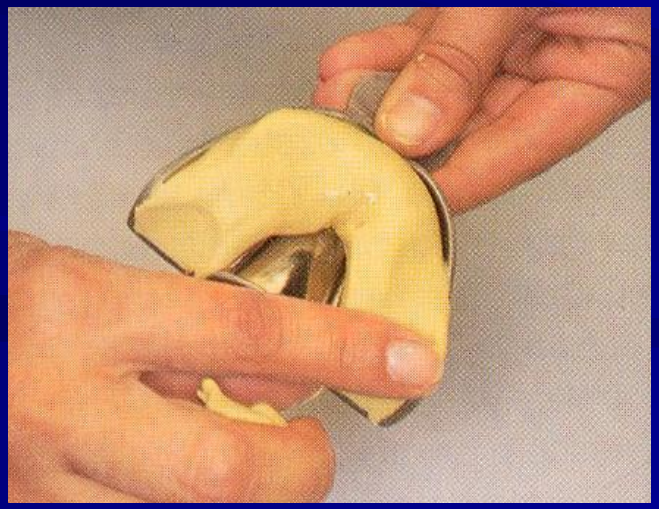
- Central cavities (class I., classs V.)
- Root canal inlays

Inlay of metal alloy

Indirect method

Taking of the impression
Model
Modellation of the casting wax,
(special polymers)
Sprue pin
Investment
Method of the lost wax



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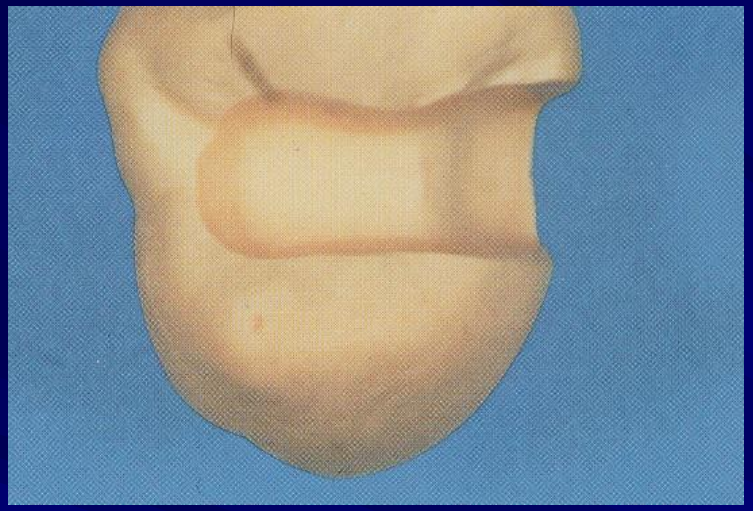
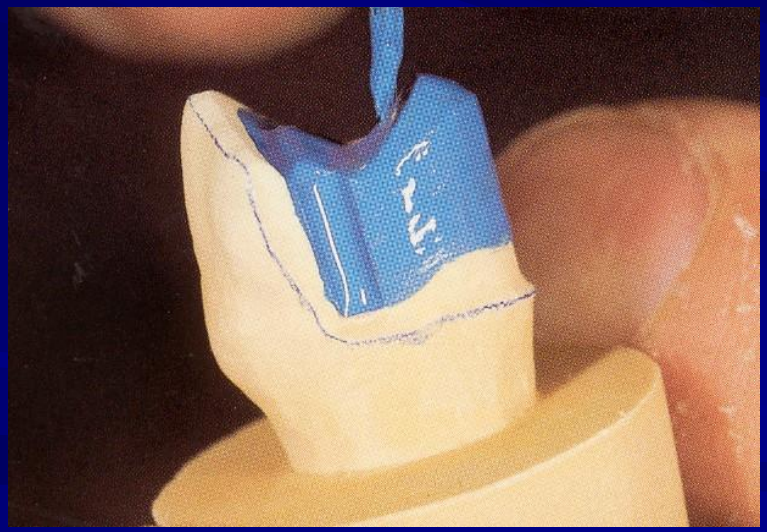
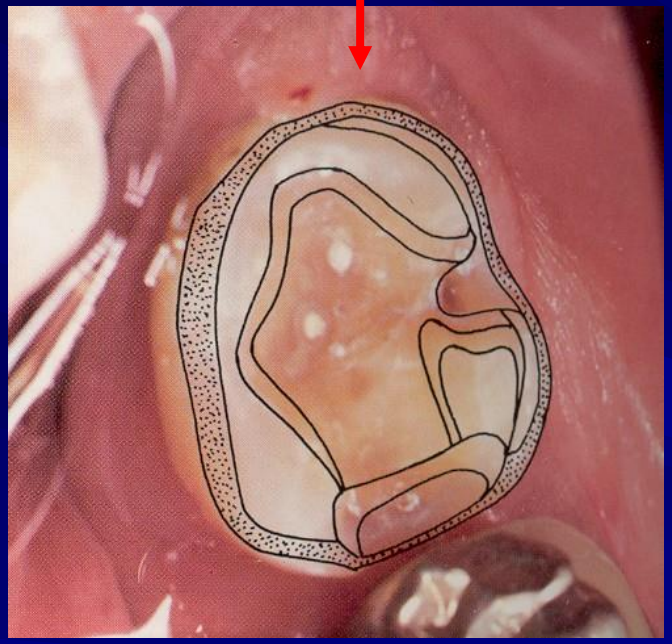


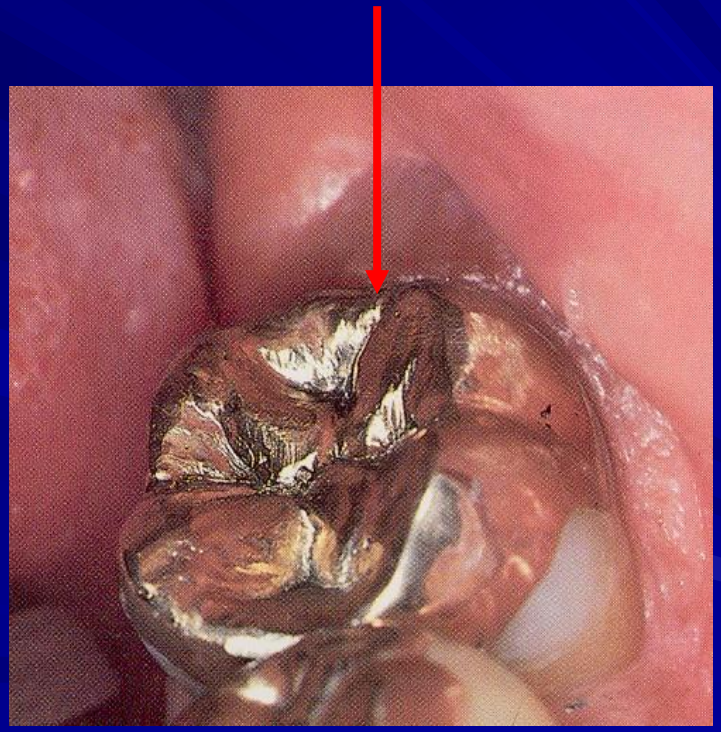


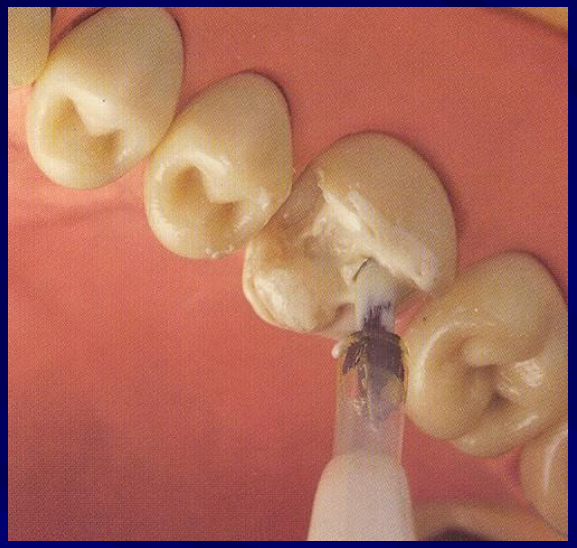

Cement
Spacer
Blue
CAUTION: FLAMMABLE
THIN WITH
DIE PREP SETTING
RETARDANT

Dokončená preparace

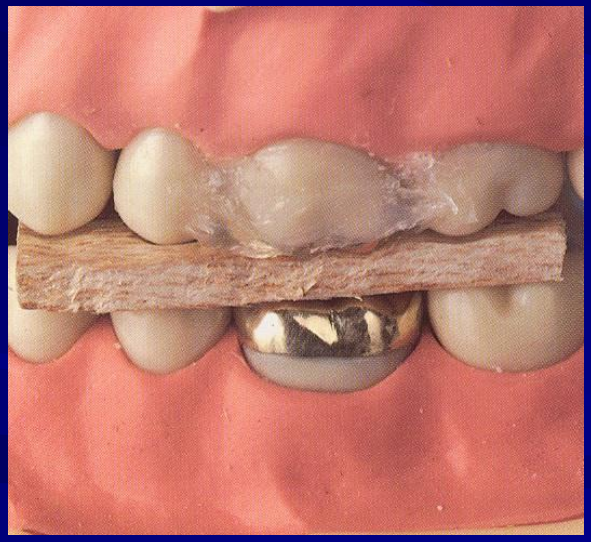


Nasazená rekonstrukce





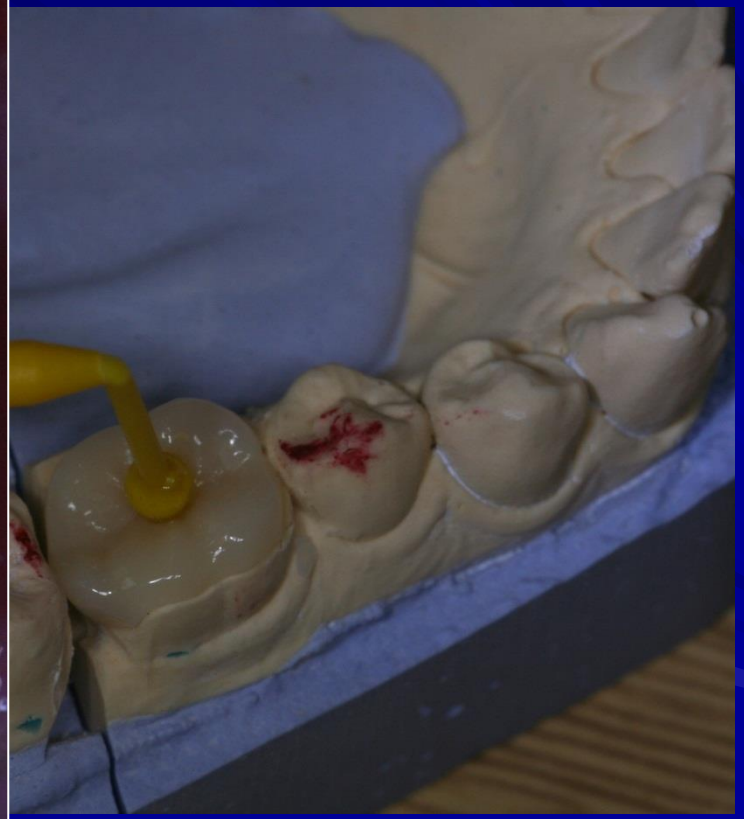

1



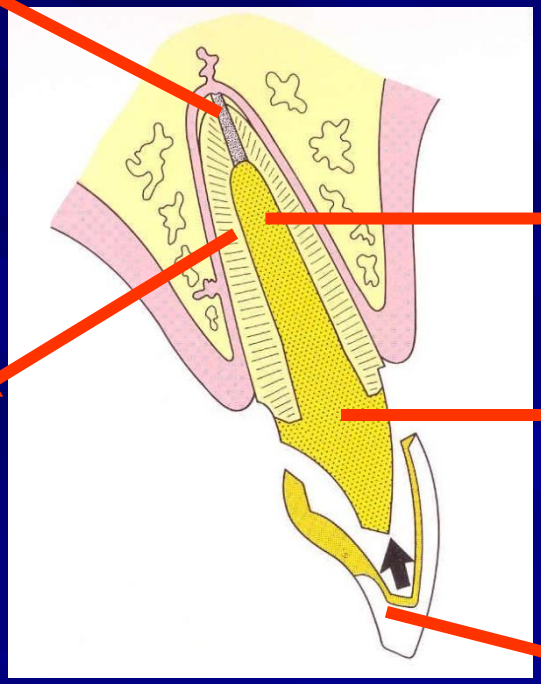
Aesthetic inlays – composite materials, ceramics

Special procedure

Indirect method always



Root canal inlay



Root canal inlay

Indication :

Restoration for teeth with lost crown

(cca 2/3 of the crown)

It is anchored in the root canal

(the tooth must be endodontically treated)

The coronal part is formed as a stump for the crown

It enables to treat this teeth with crown

Contraindication

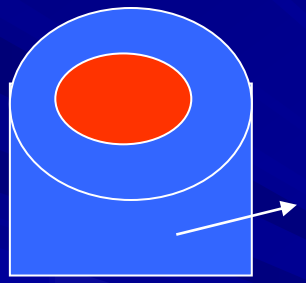
- Teeth that cannot be treated endodontically
- Decay of the root or coronal part of the crown
- Less than 1mm hard dental tissues supragingivally
- Destruction of root canal walls circulary

Root canal inlay - preparation

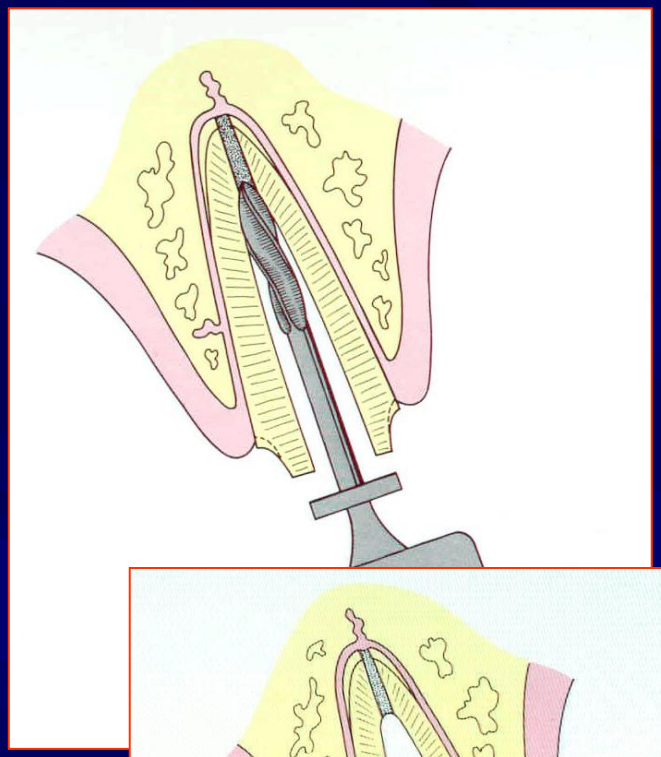
- Removal of the root canal filling (2/3), 4 mm of the root canal filling must be left.
- The third rule

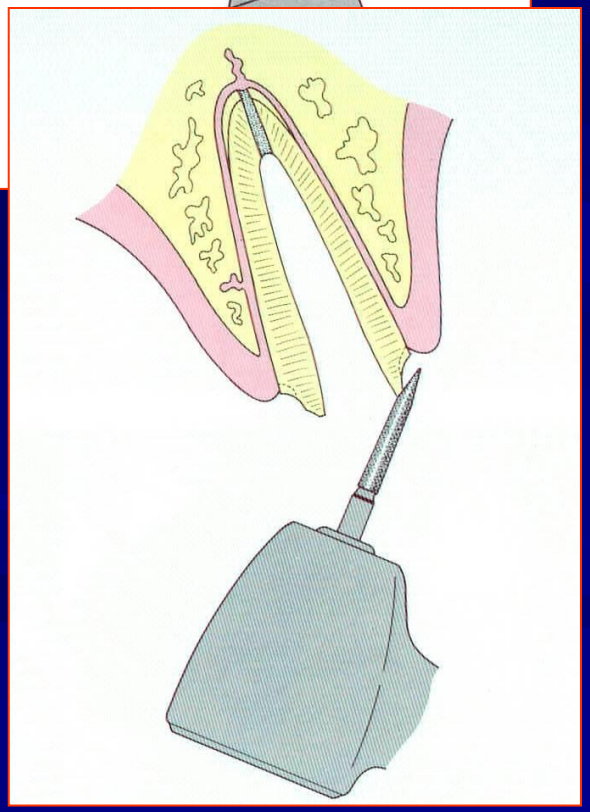
Gates, Peeso – Largo, Beutelrock – these burs has „flame form“

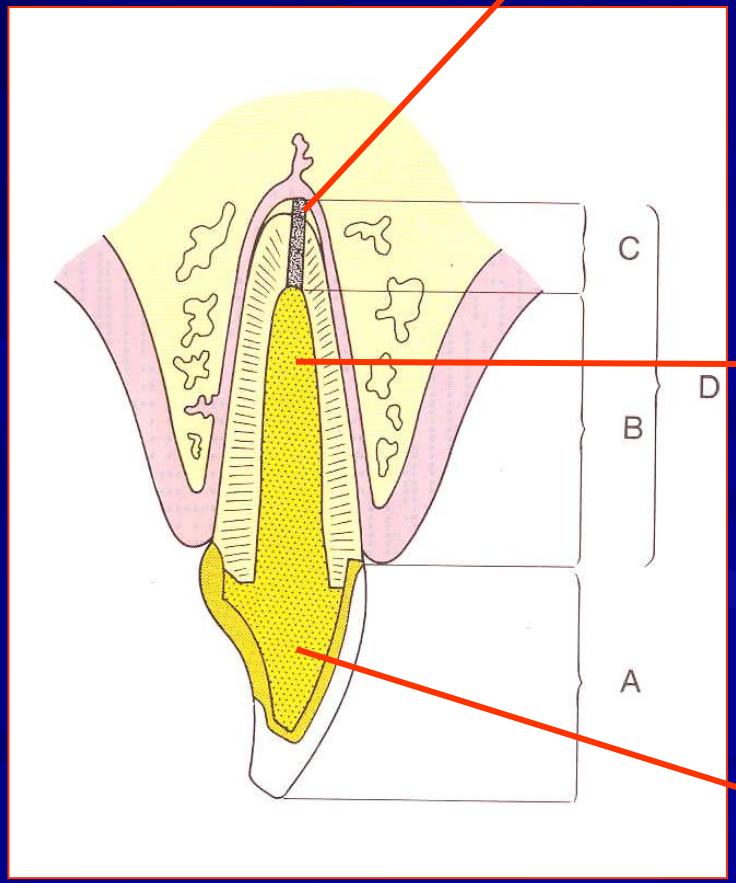

1/3
1/3
1/3


1- 2mm

Preparation



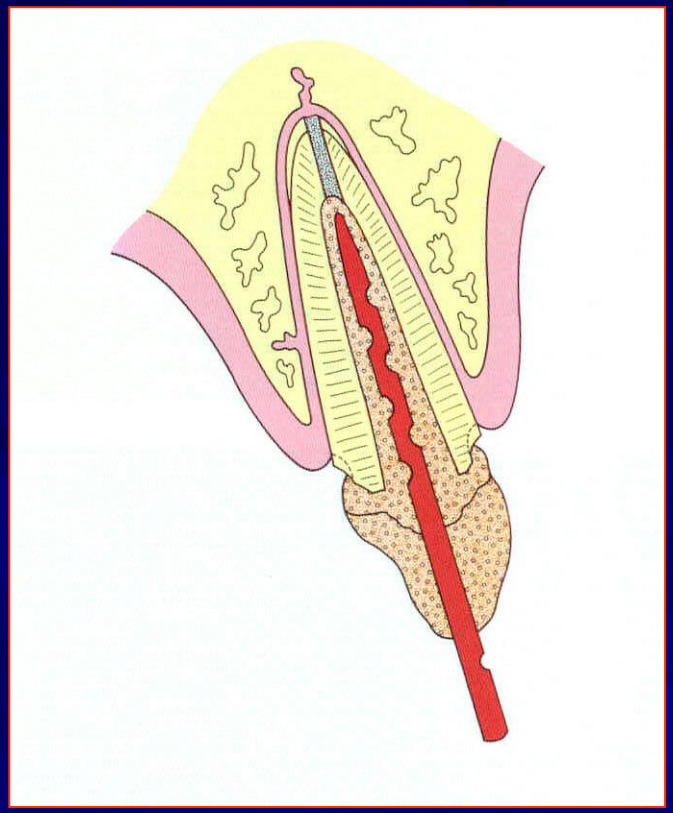




4mm at least

2/3 of the
root canal length

1/4 of the total length



Direct method

Isolation

Modellation – casting wax, heated, flowing

Sprue pin with reservoir

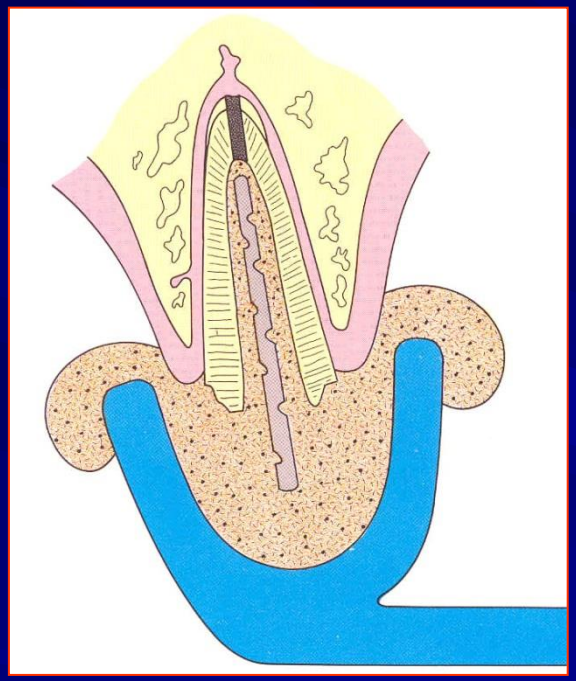
Sprue cone

Investment

Lost wax method

(burntout in the special oven)

Indirect method



Impression

Model

Modellation – casting wax, heated, flowing

Sprue pin

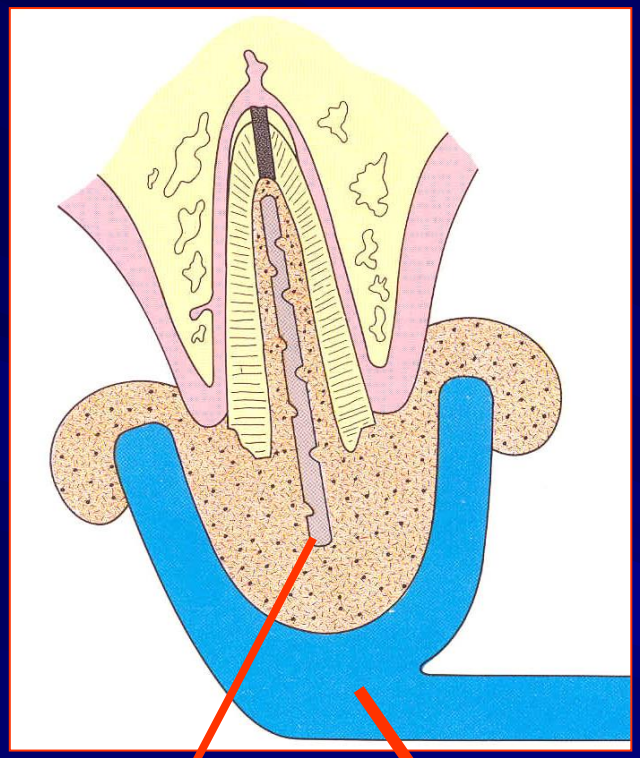
Investment

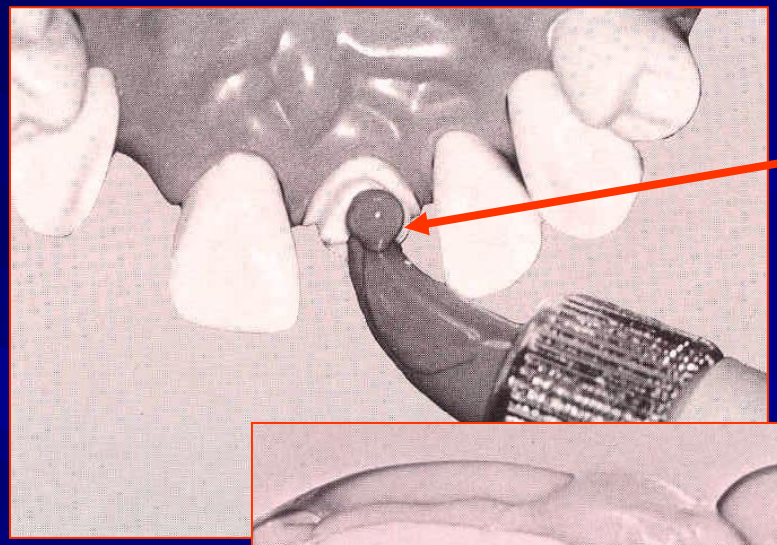
Lost wax method

(burntout in the special oven)

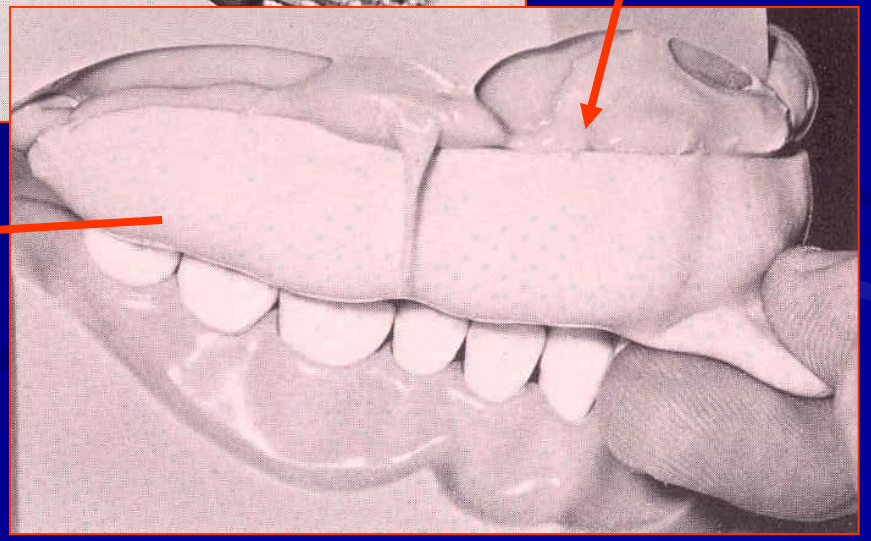
Indirect method

Impression



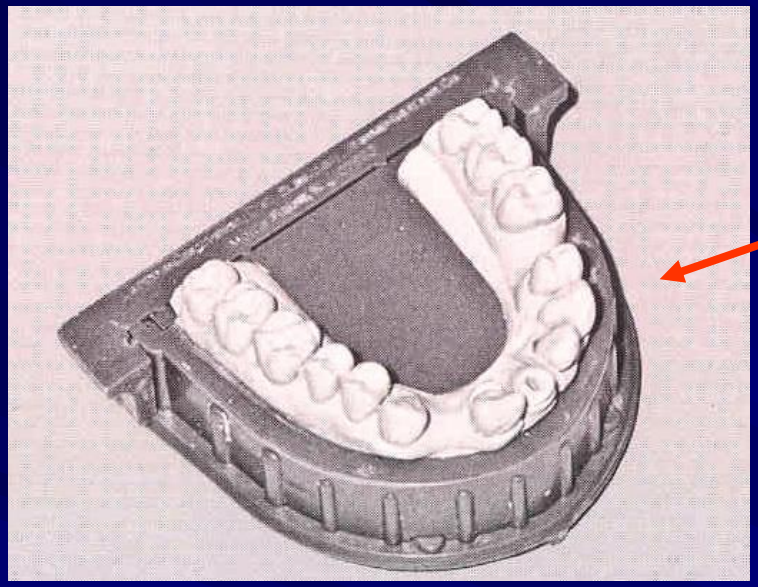


Impression material



Wire

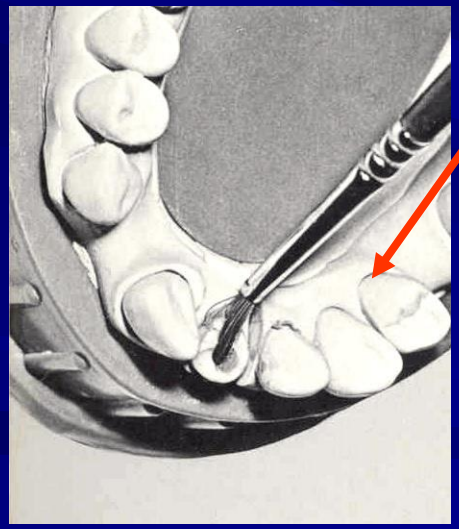
Impression tray

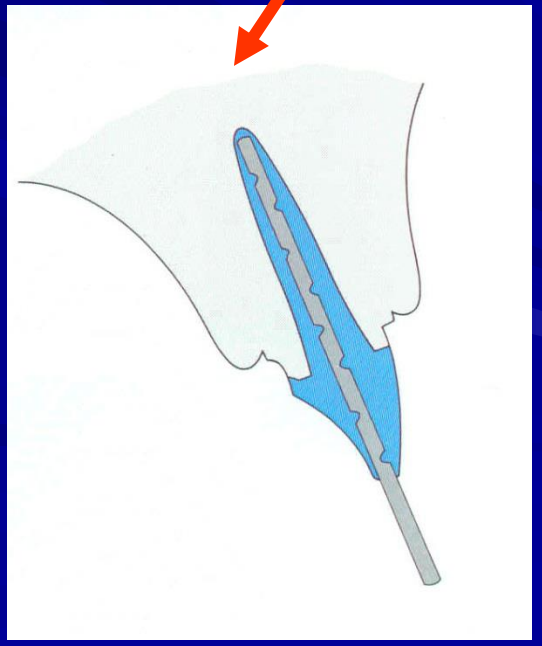


Model

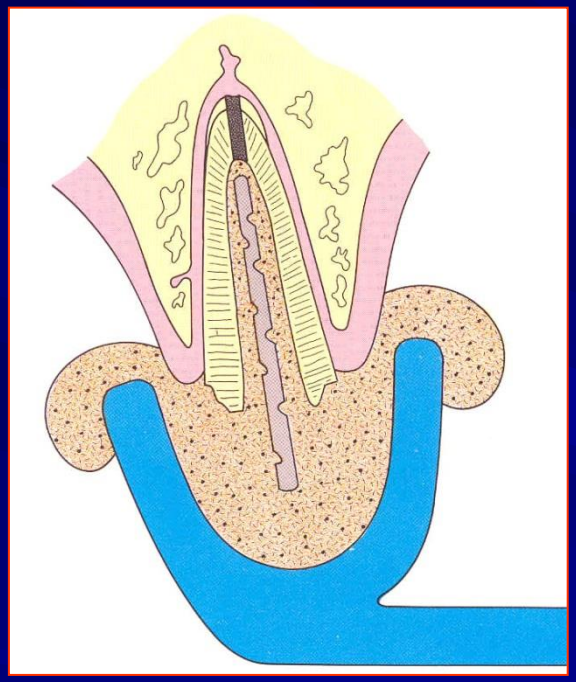
Insulation

Modellation





Indirect method



Impression

Model

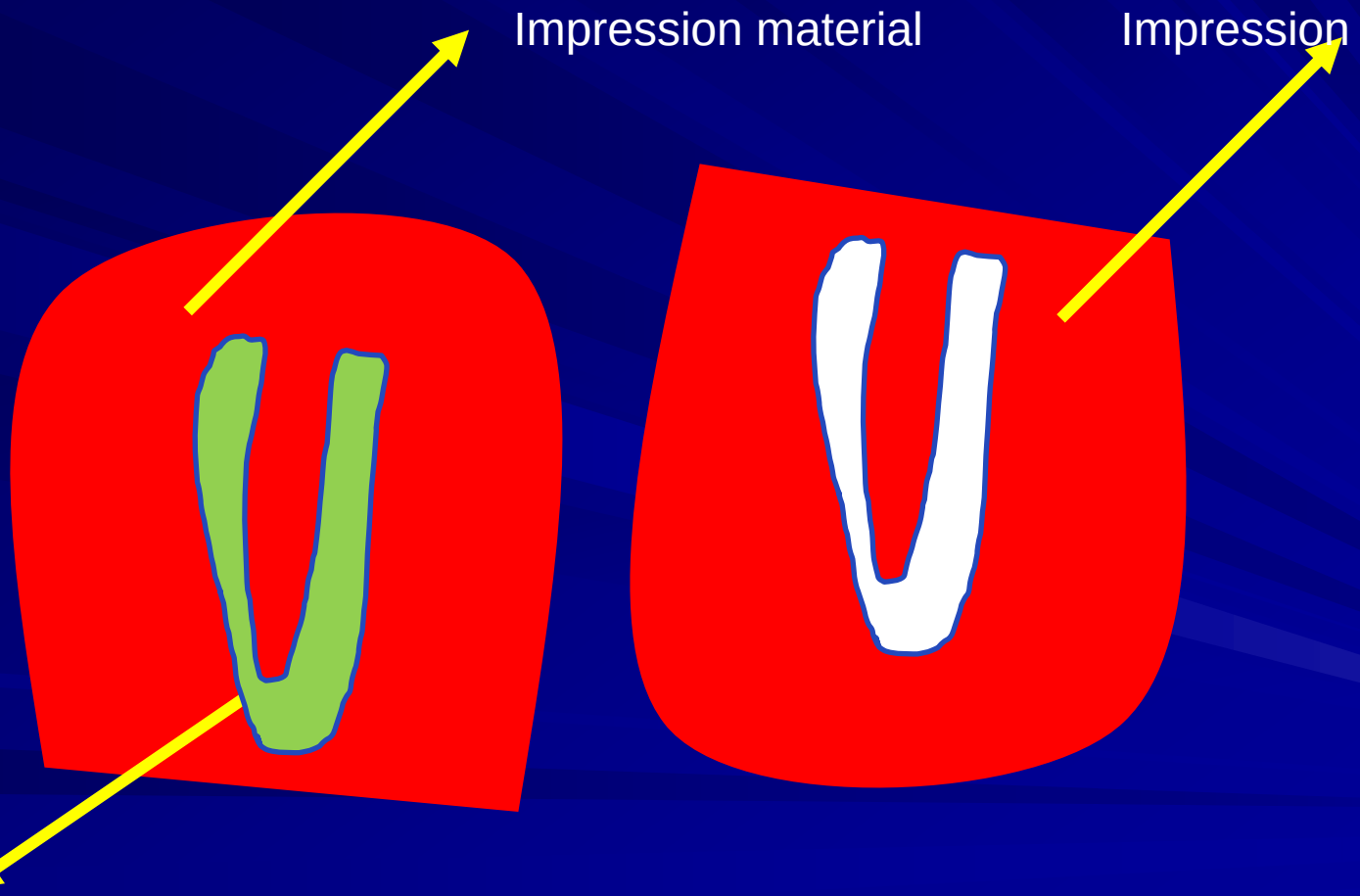
Modellation – casting wax, heated, flowing

Sprue pin

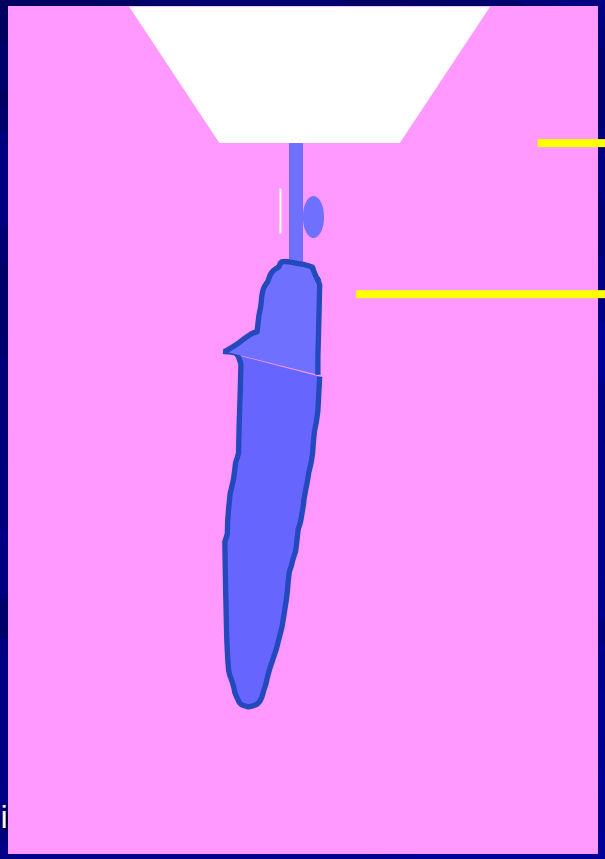
Investment

Method of the lost wax

(burntout in the special oven)

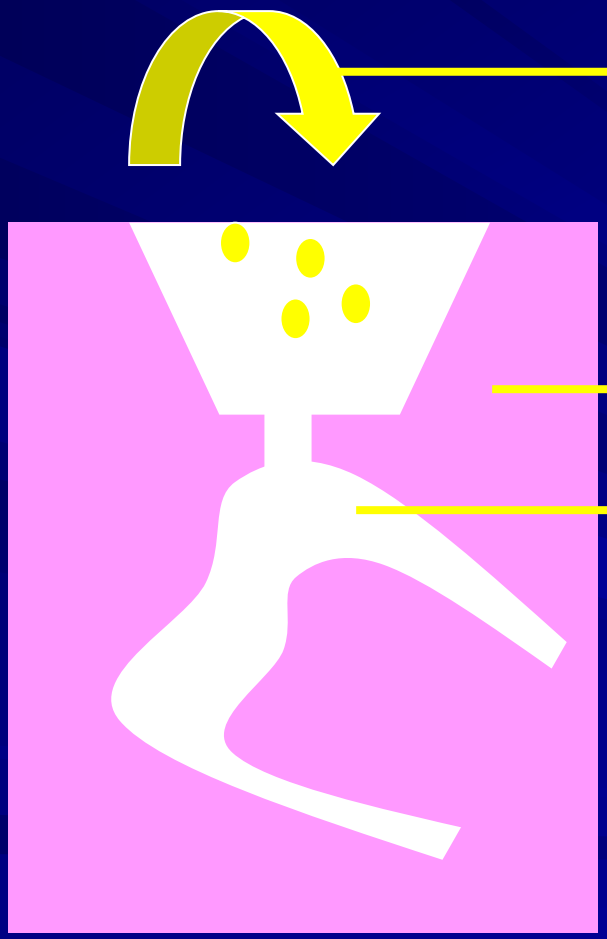

Impression material
Impression
Tooth


Plaster
Model



The investing material

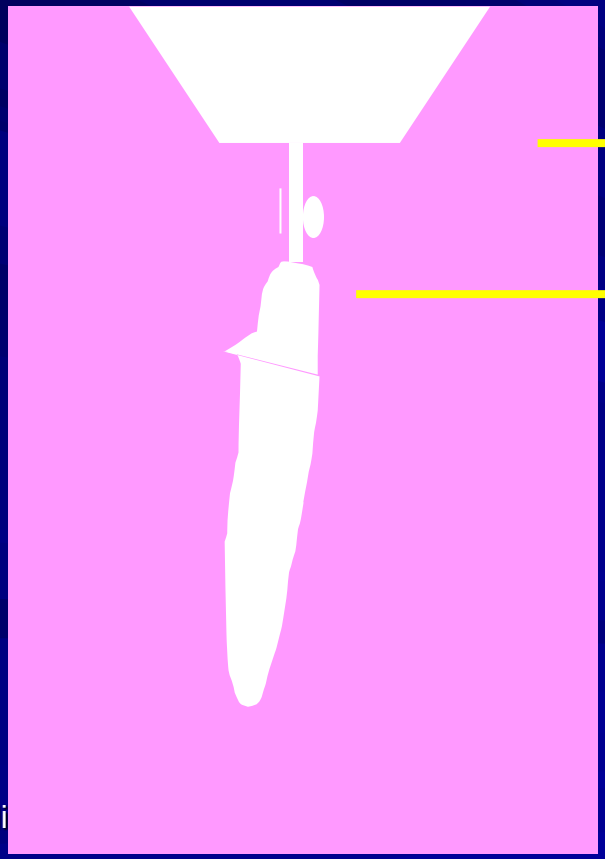
The model
(wax pattern)



The melted alloy

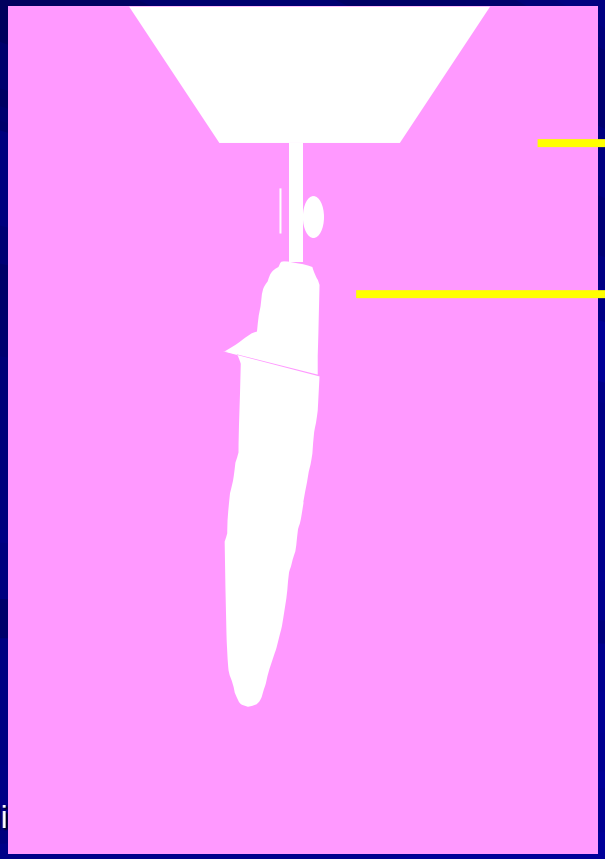
The investing material

The form



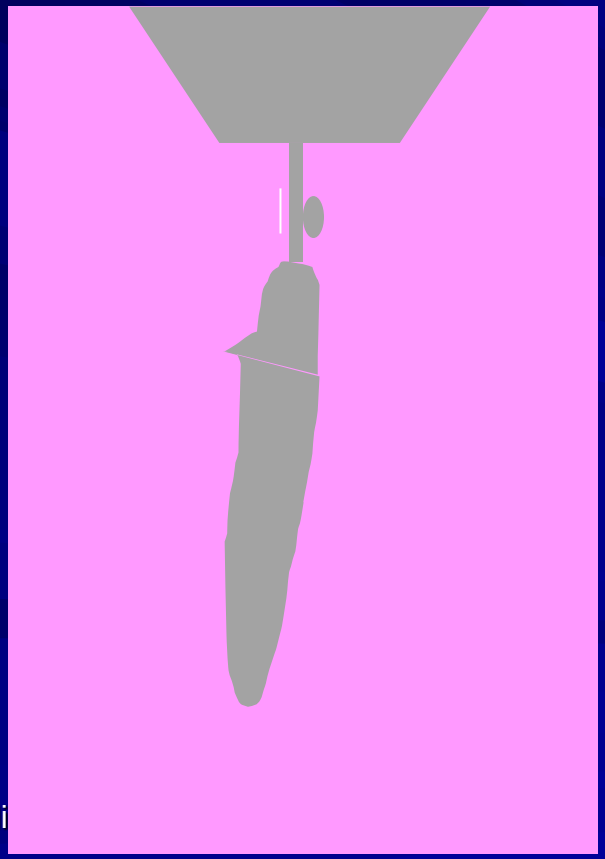
The investing material

The model
(wax pattern)



The investing material

The model
(wax pattern)



- Final product

Cementation

- Zinkoxid phosphate cement
- Lentulo
- Vaseline
- Removal of access of the cement