

Prosthetics I.

Rehabilitation of the
masticatory apparatus

Classification of defects,
dentures, abutment teeth,
inlays – crown and root

Function of dentition

- Food admission
- Trituration (comminution) of food
- Phonation
- Aesthetics - psychology

If no prosthetic rehabilitation

- Bad comminution of food – bad digestion – irritation, diseases of the digestion apparatus.
- Bad phonation
- Psychological aspect of lost teeth
- Disorders of TMJ

Prosthetic dentistry – replacement of

Damaged teeth

– *reconstruction of the crown
(inlays, crowns)*

Missing teeth

- *appropriate prosthesis (denture)*

Prosthesis

- Individually made
- Differences
 - in the type of defect, extent and location
 - in the size, shape and position of teeth
 - in the quality of hard and soft tissues of the oral cavity
 - in intermaxillary relations

Prosthesis (denture)

Rehabilitation of:

- Function
- Comfort
- Aesthetics
- Phonation

Fixed dentures

- Cemented on the teeth – inlays
- crowns, bridges,

Removable dentures

- Partial
- Complete (full)

Prosthetic dentistry – replacement of

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Planning of the denture

Complex examination

1. Extent and location of the defect
2. Damage of the involved teeth (caries, fillings atc.)
3. Periodontium (supportive tissues)
4. Shape, size, position of teeth, relationship to the neighbours
5. Occlusion, articulation – relationship to the antagonists
6. Quality of the alveolar process
7. The level of oral hygiene
8. X-ray examination
9. Study impressions – study models
10. Detail evaluation of the abutment teeth (pilots) – most important teeth – canines, premolars

Classification of defects Voldřich

I. Class – dental arch with gaps

One or more teeth are missing

Small gaps – 1 – 2 teeth

Big gaps 3 – 4 teeth at most. This big gaps must be demarcated by pilot of the best quality. (canine, 1st or second molars – pilots of 1st class or their equivalents)

Classification of defects Voldřich

II. Class

Reduced (shortenened) dental arch, then last tooth is the second premolar.

With gaps

Without gaps

Bilateral

Unilateral

Classification of defects Voldřich

III. Class

Individual teeth or small groups of teeth

Classification of defects Voldřich

IV. Class

Edentulous dental arch

Classification of pilots (abutment teeth)

Pilots I. class

Canines

Molars (1st, 2nd)

Classification of pilots (abutment teeth)

Pilots II. st class

Incisors - maxillary incisors, premolars

Classification of pilots (abutment teeth)

Pilots II. st class

Incisors - maxillary incisors, premolars

Classification of pilots (abutment teeth)

Pilots III. class

Mandibular incisors, third molars, all teeth with bad biological factor



Biological factor

- Caries
- Pulp vitality
- Level of the endodontic treatment
- Level of the resorption of the alveolar bone
- Periodontium
- Relationship to antagonists
- Relationship to neighbour teeth

Way of the transfer of masticatory forces

- Tooth
- Tooth and oral mucosa
- Oral mucosa

Classification of dentures

I. Class – fixes or removable bridges

Classification of dentures

III. Class –removable denture

- Tissue born denture (sometimes also tooth and tissue born denture)

Classification of dentures

II. Class removable dentures

With metal framework and tooth and tissue borne dentures

*The way of transfer of masticatory forces -
tooth and oral mucosa*

Classification of dentures

IV. Class – complete denture

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

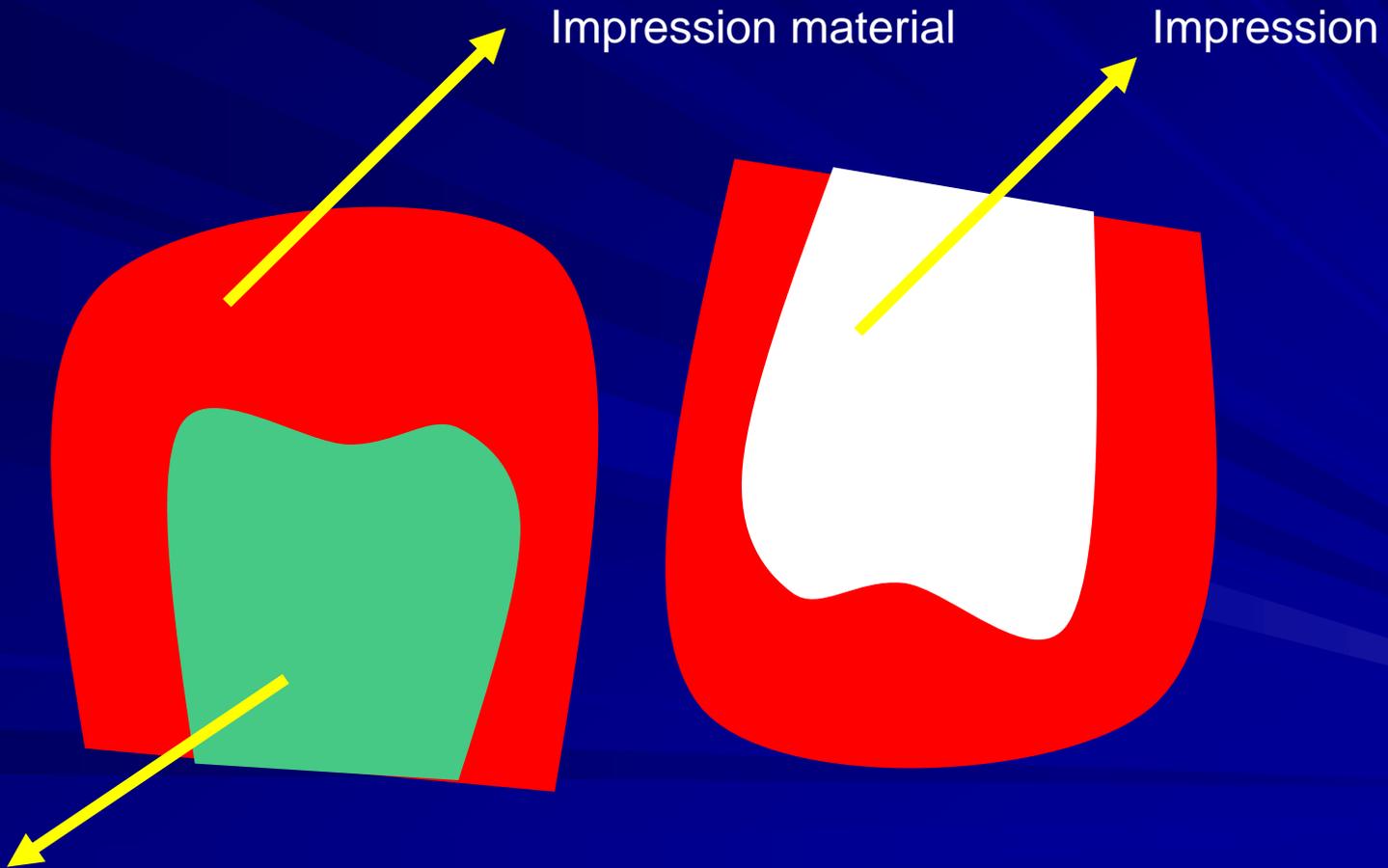
Model of gypsum (plaster) – model of a denture (wax pattern).

Impressions of the jaw - negativ

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



Model
(various purpose)



Impression material

Impression

Tooth

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Models

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

Manufacturing of dentures

- 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

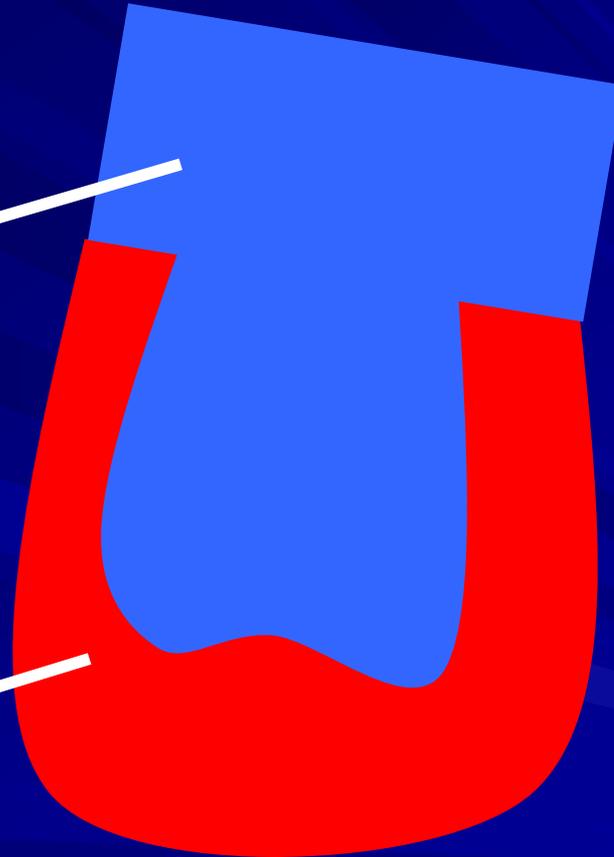
The wax is removed from the form and the base material is placed into the form.

Wax removal:

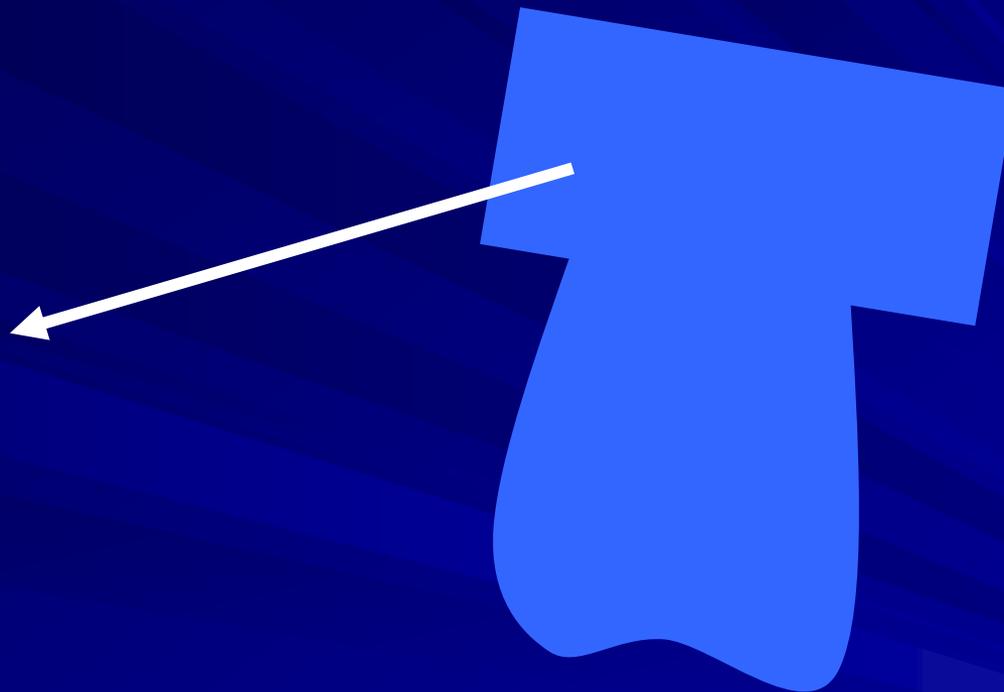
*The wax is burned out (for metal alloys)
or removed by hot water (for polymers)*

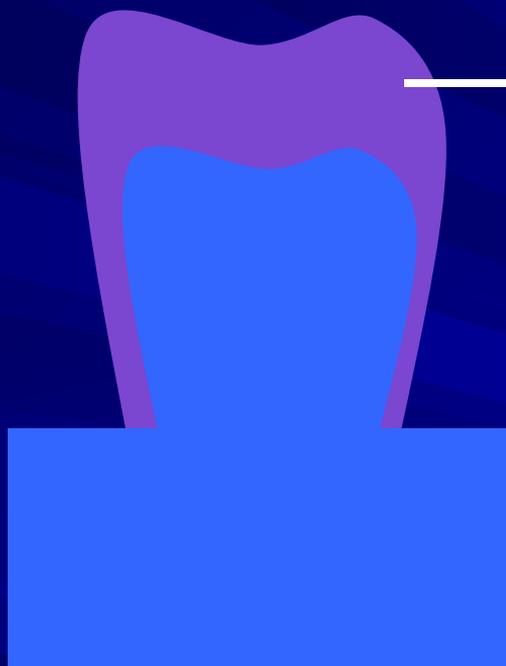
Gypsum

Impression

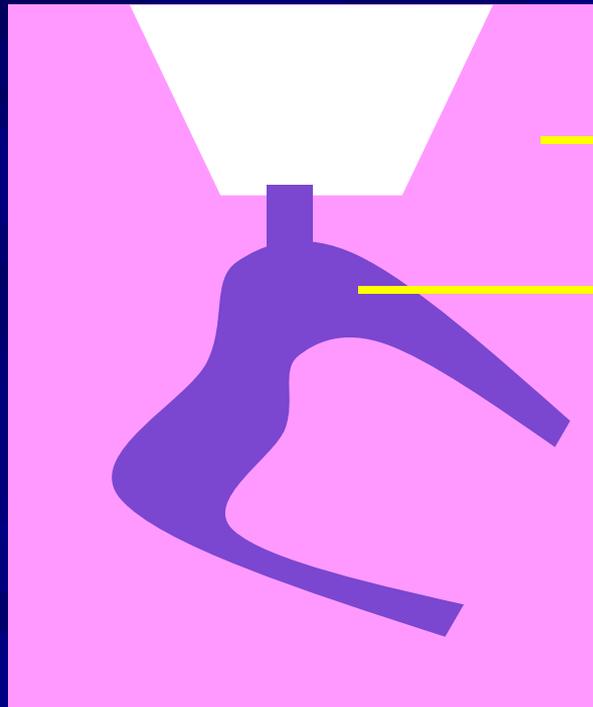


Plaster



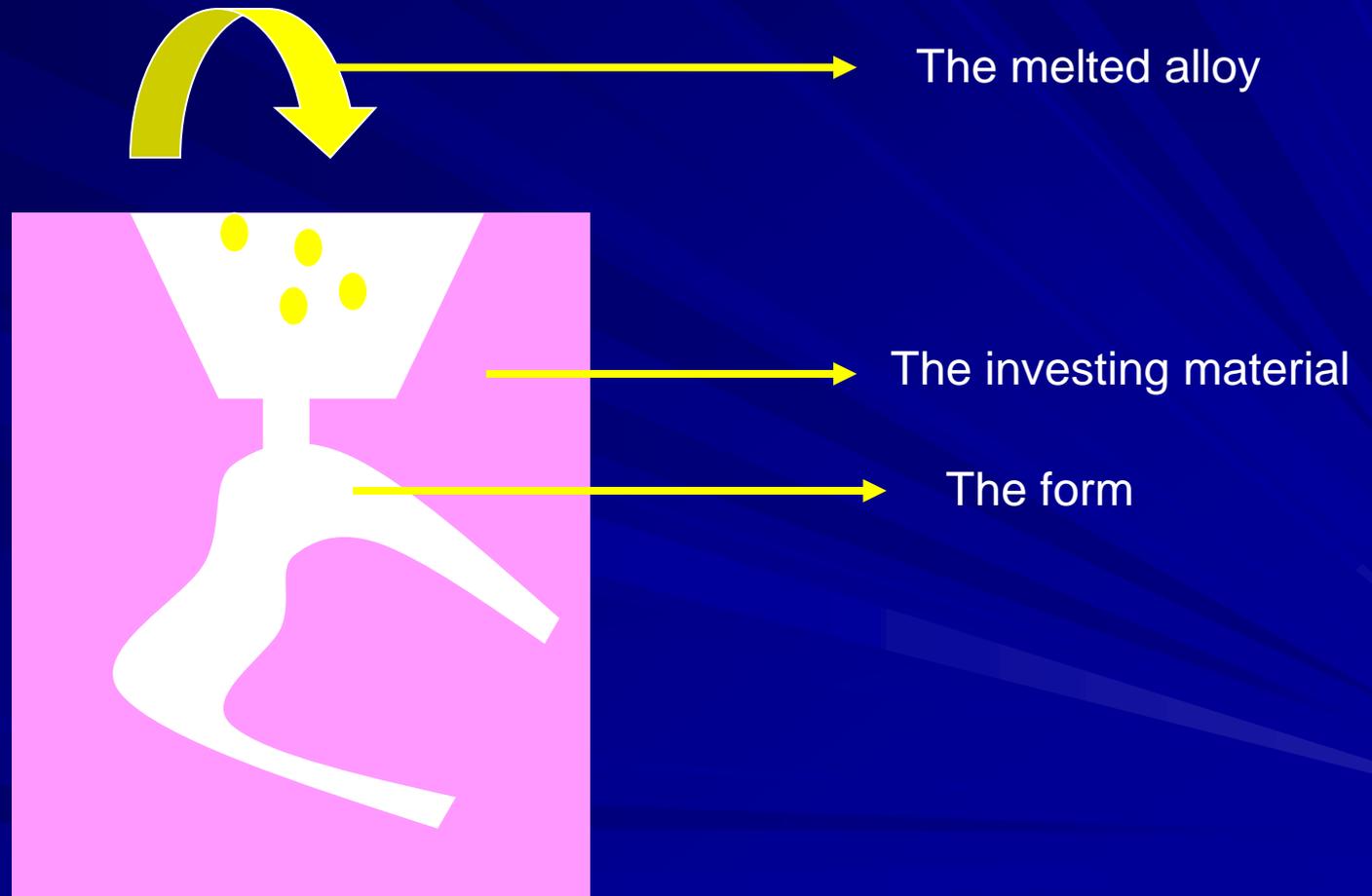


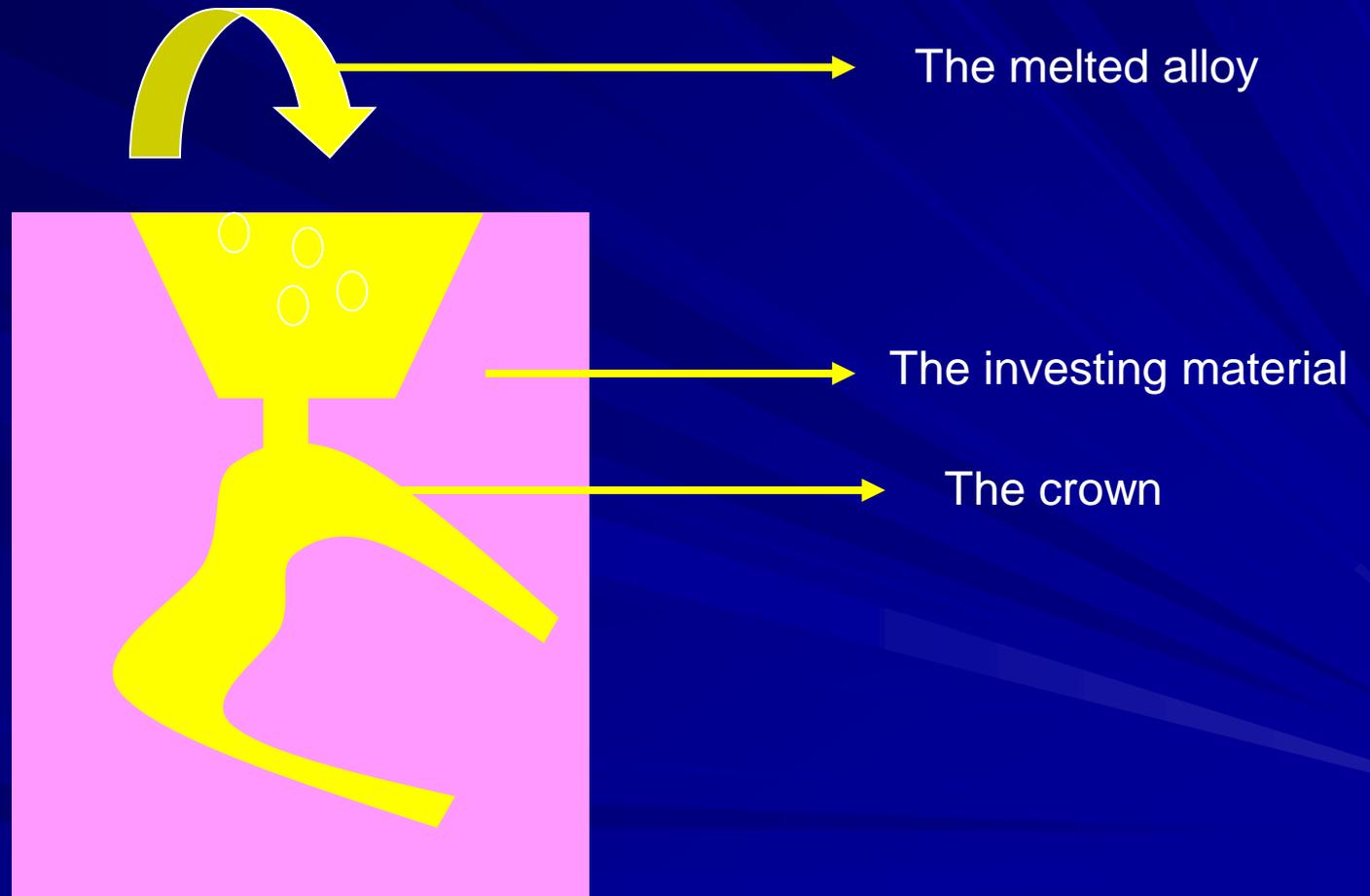
The model (wax pattern)

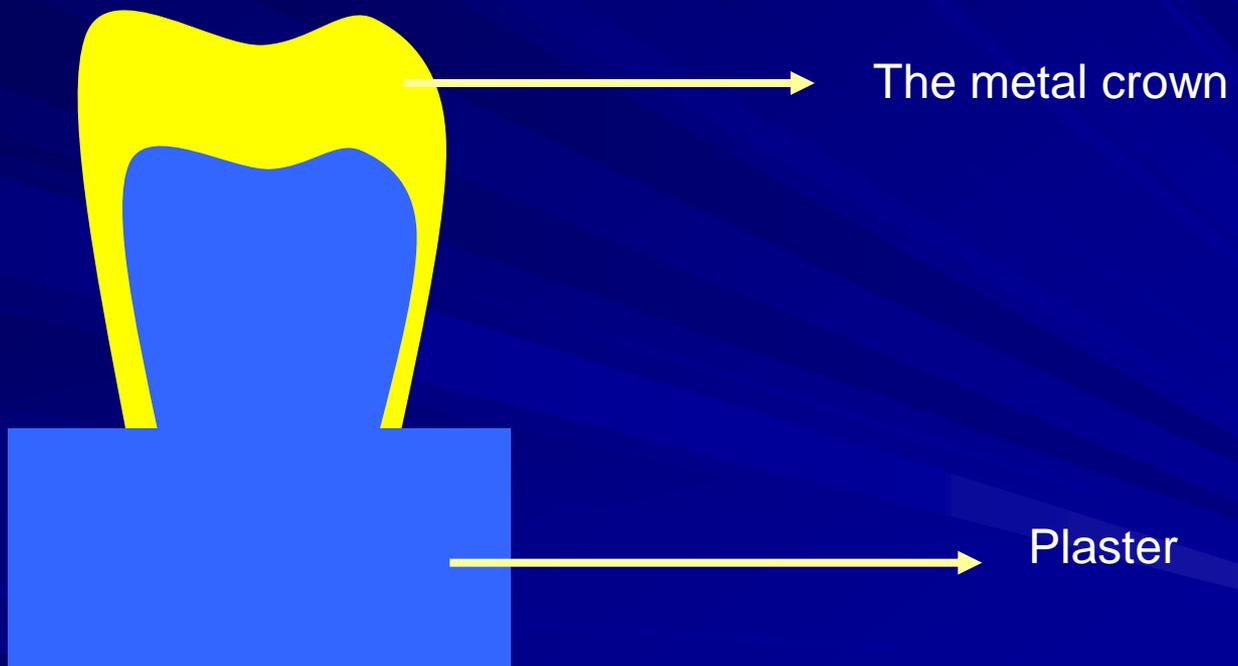


→ The investing material

→ The model
(wax pattern)







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

Fixed dentures

- Restore the form (and function)
- Cemented on (in the) prepared teeth
- Can not be removed

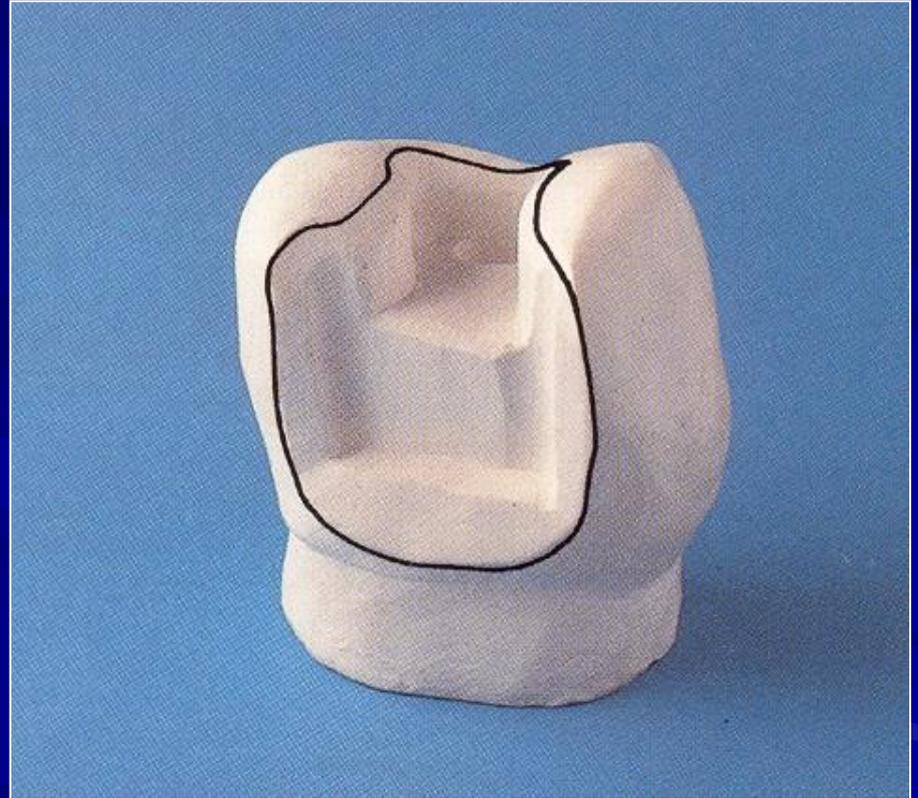
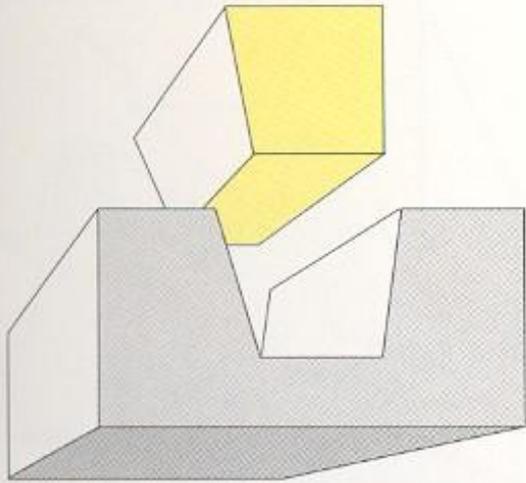
Fixed dentures

Inlays /onlays

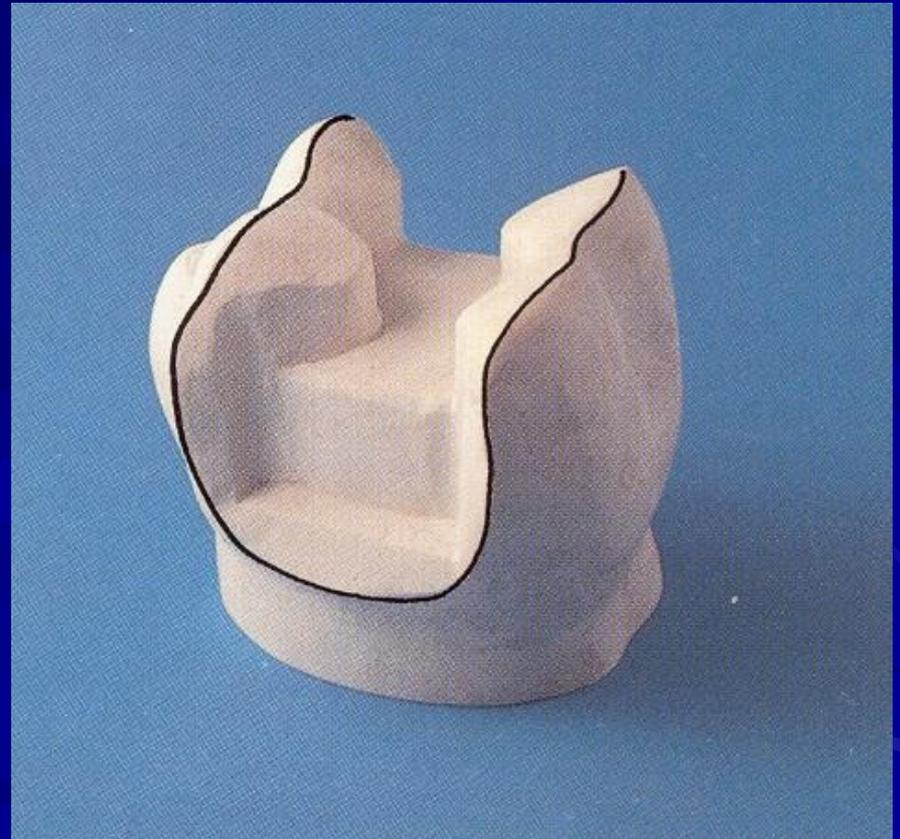
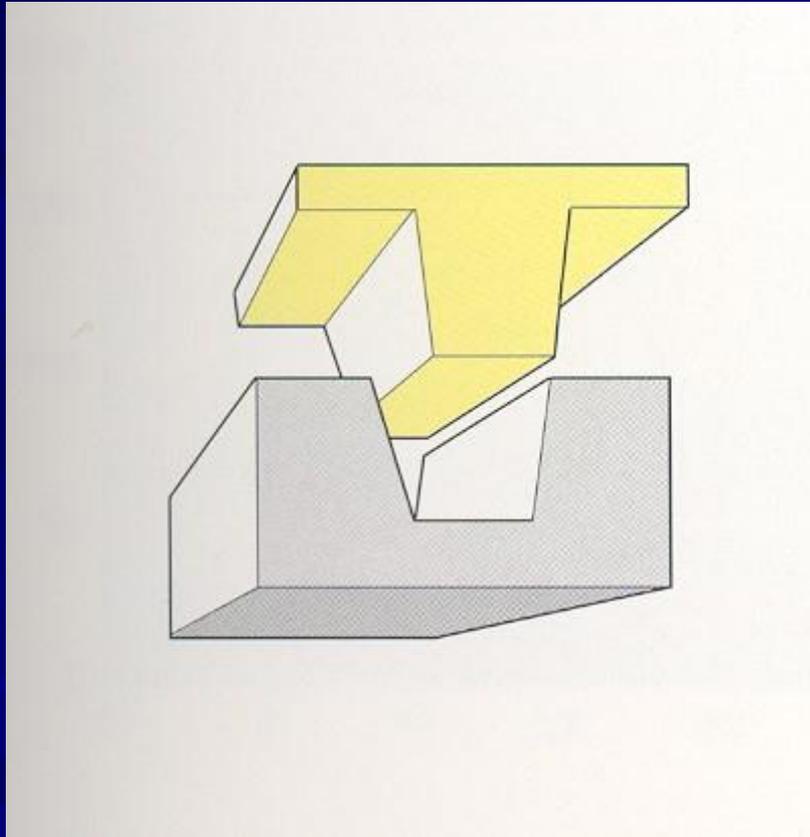
Crowns

Bridges

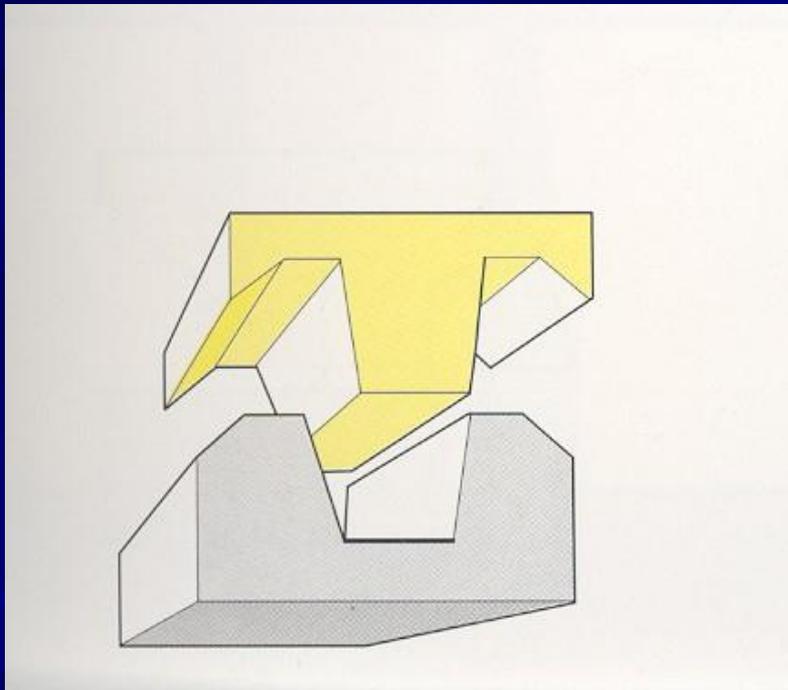
Inlay



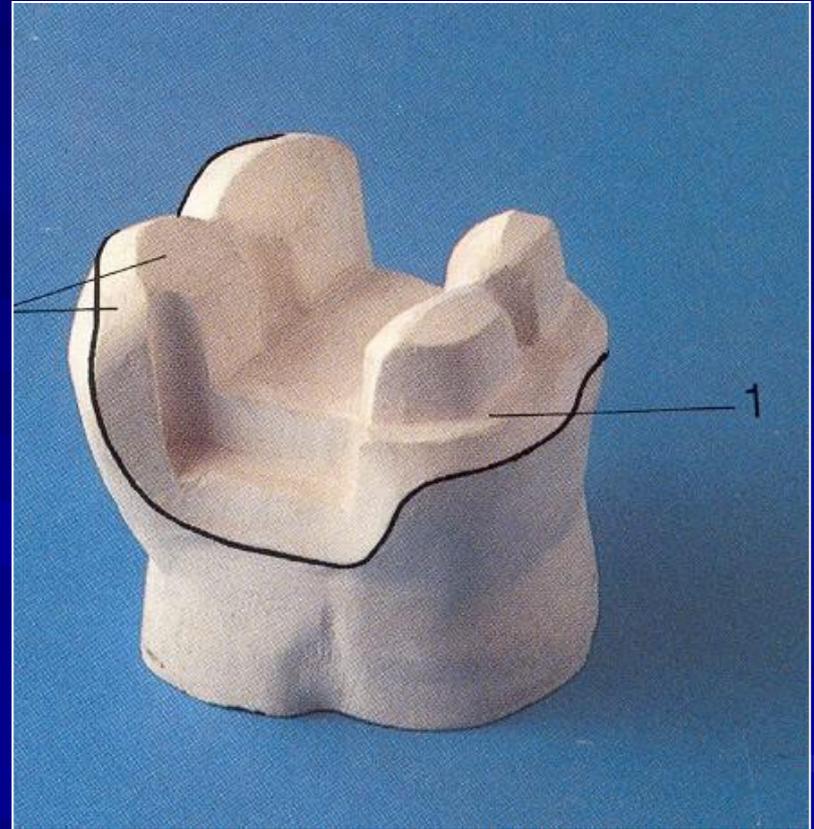
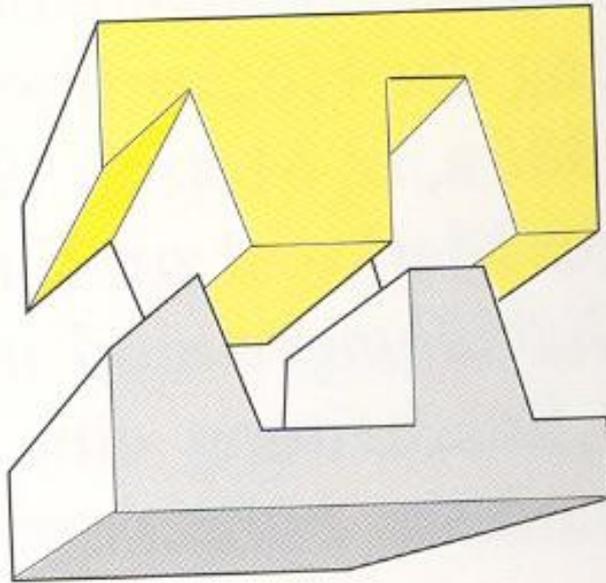
Onlay



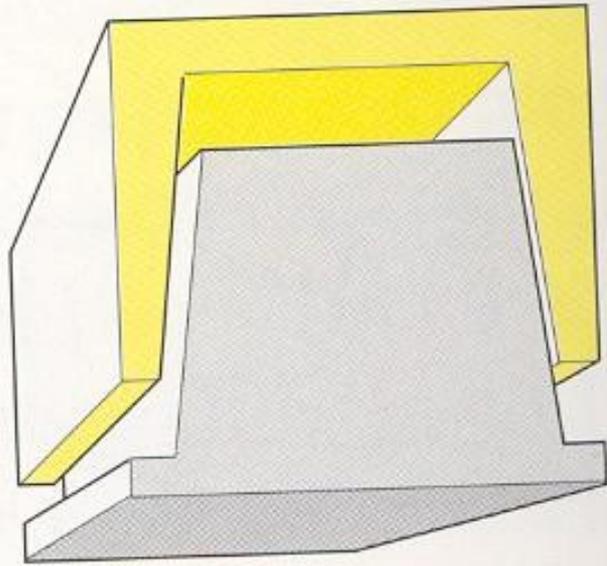
Overlay

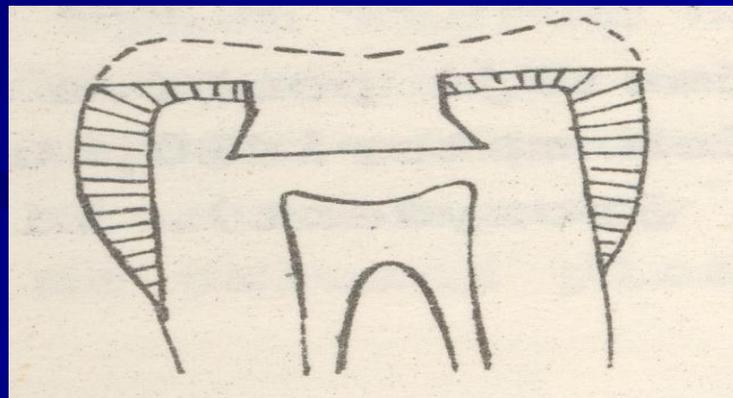
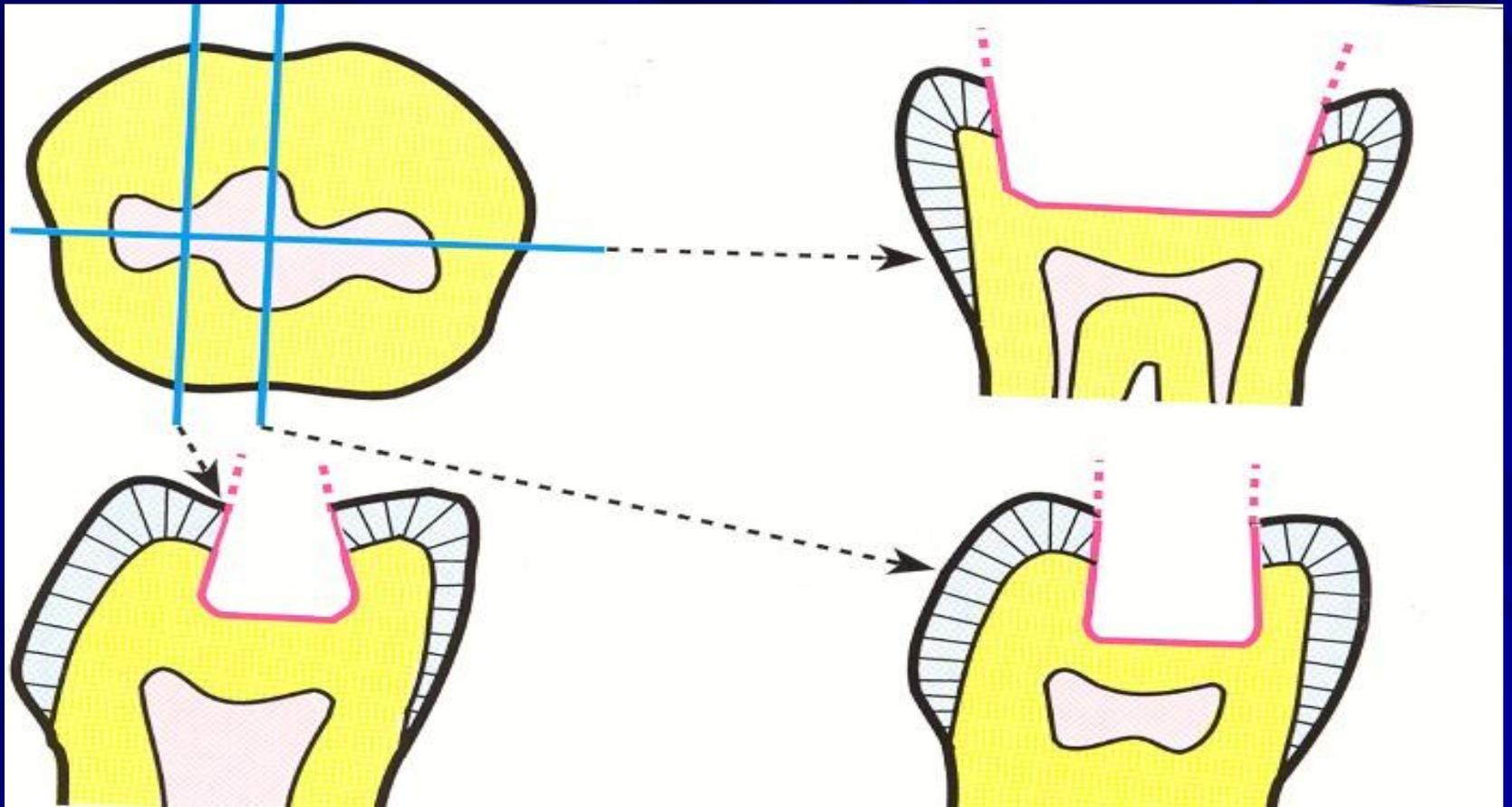


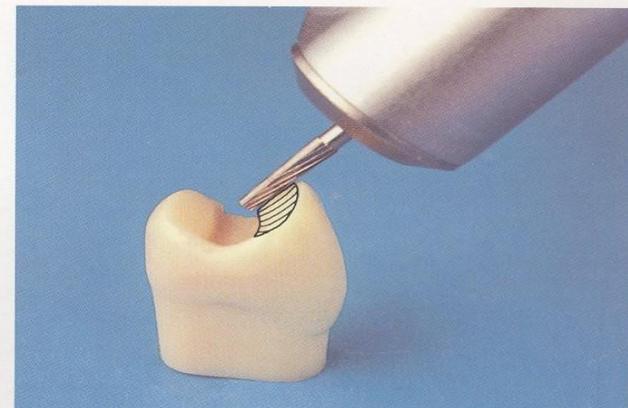
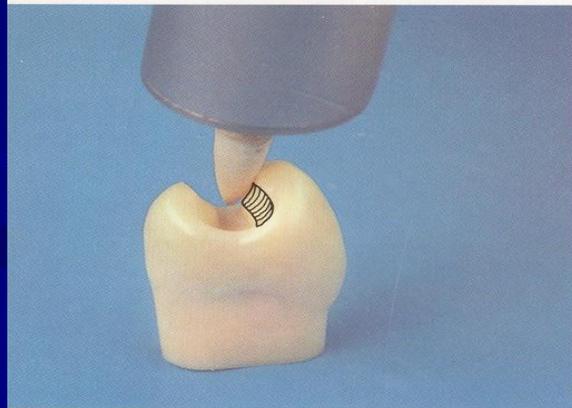
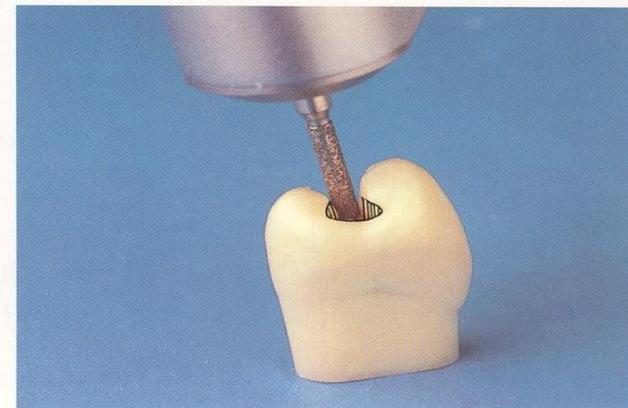
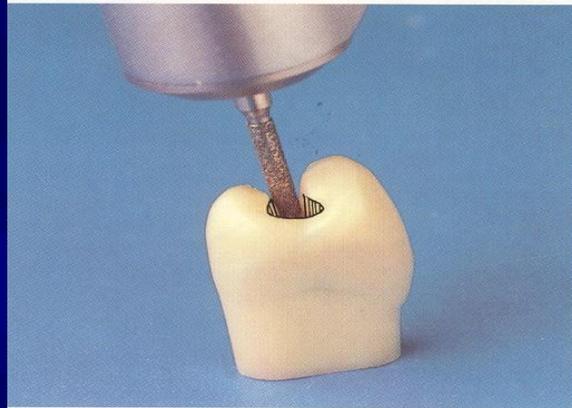
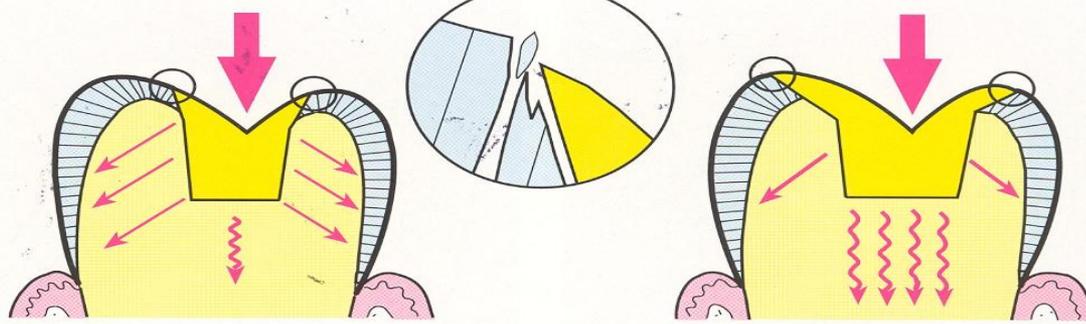
Partial crown

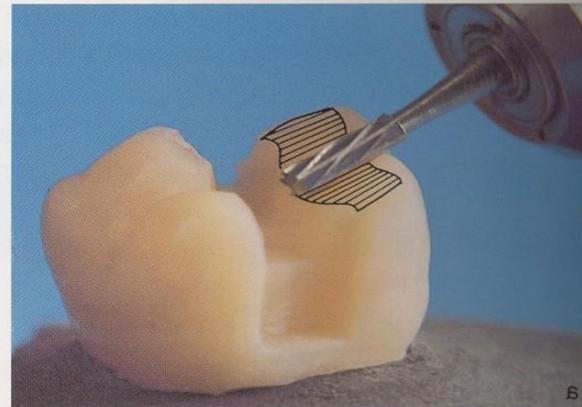
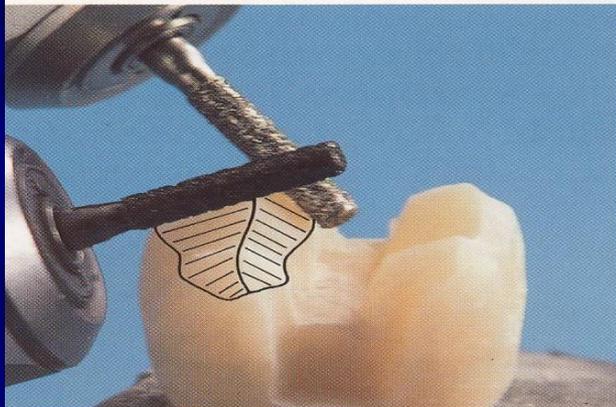
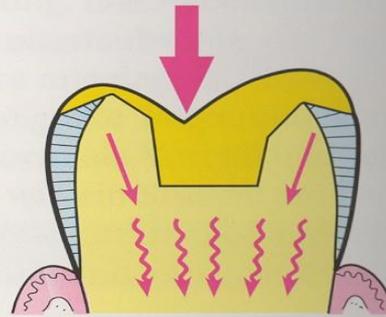
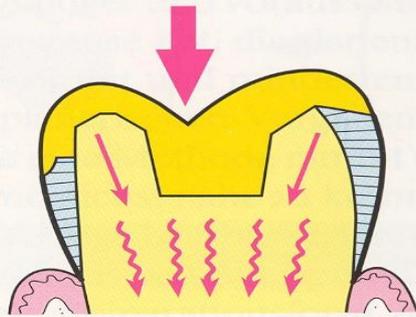


Crown

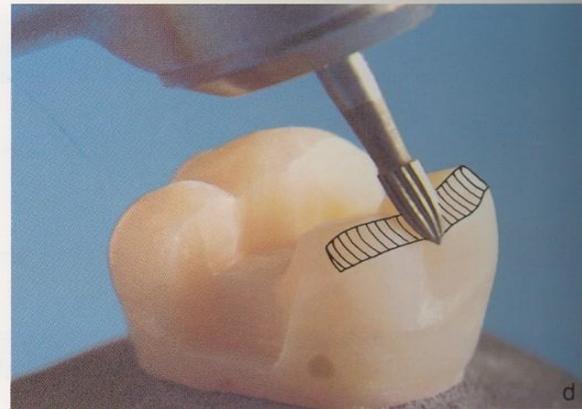
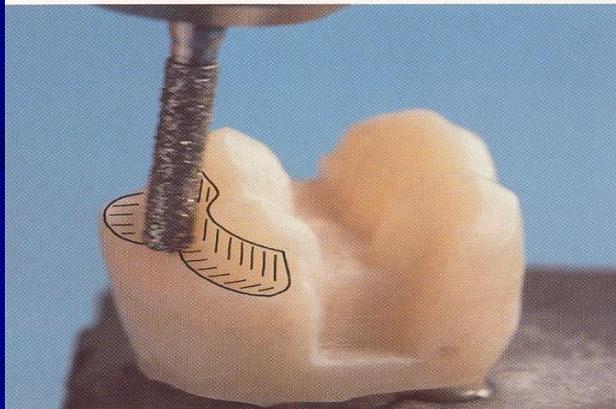


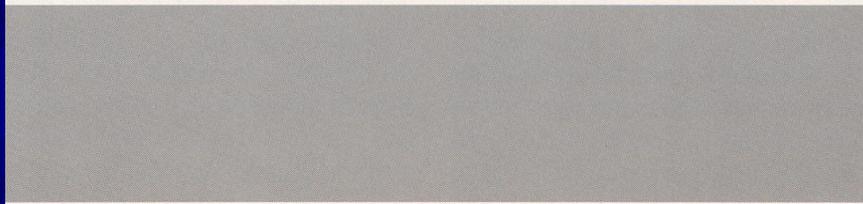






– Erhalten Zahnstruktur
– Retention Kippstabilität



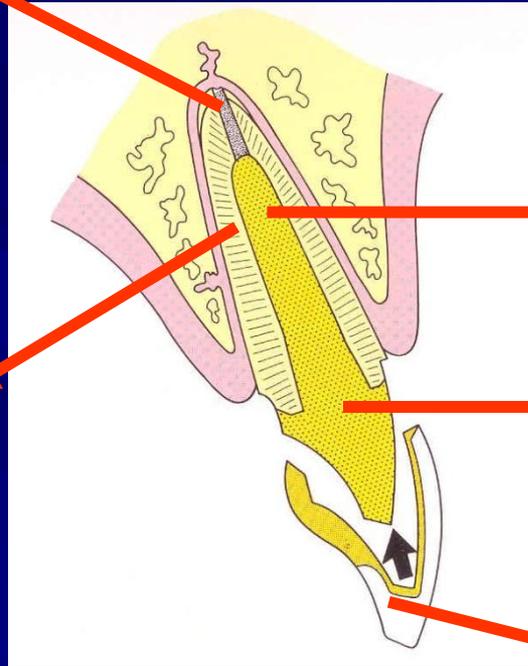






Root canal inlay

Root canal filling

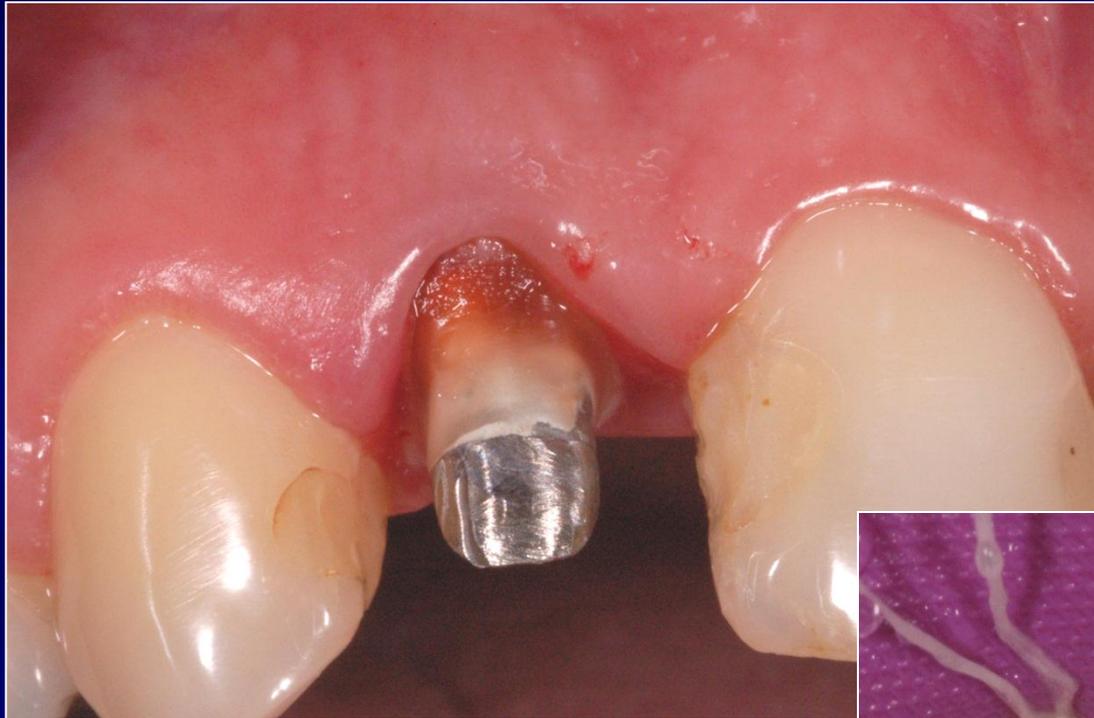


Root post

Stump, snag

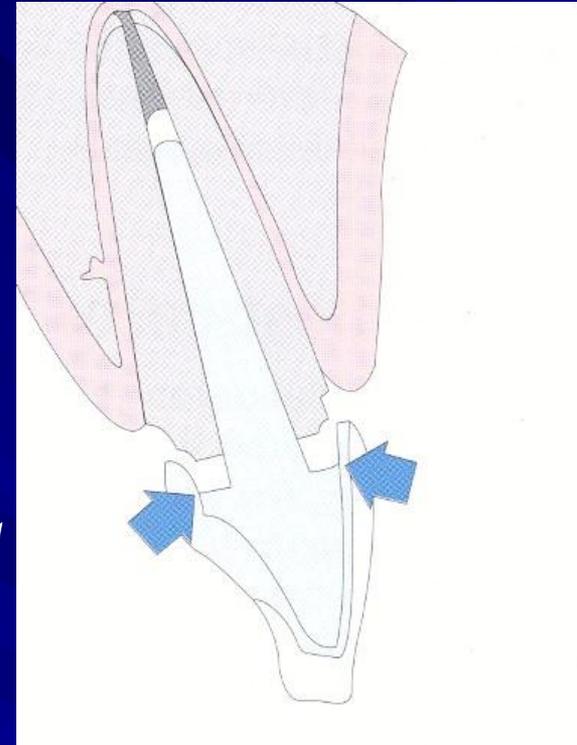
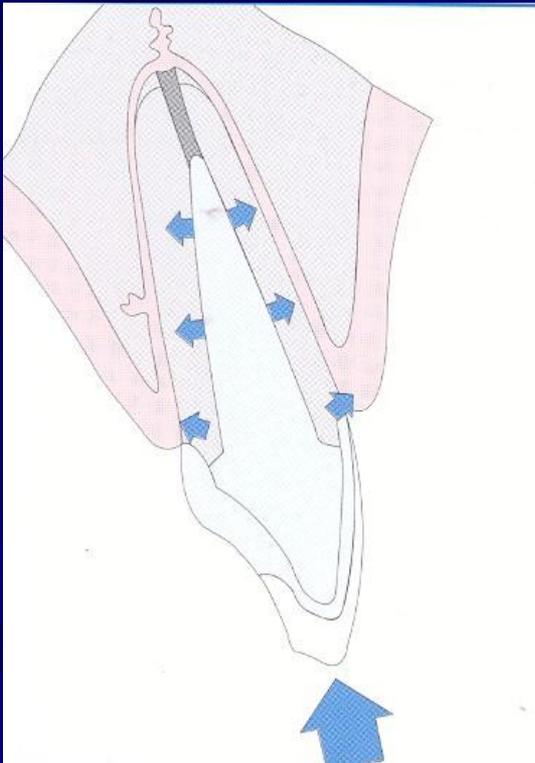
Root

Crown



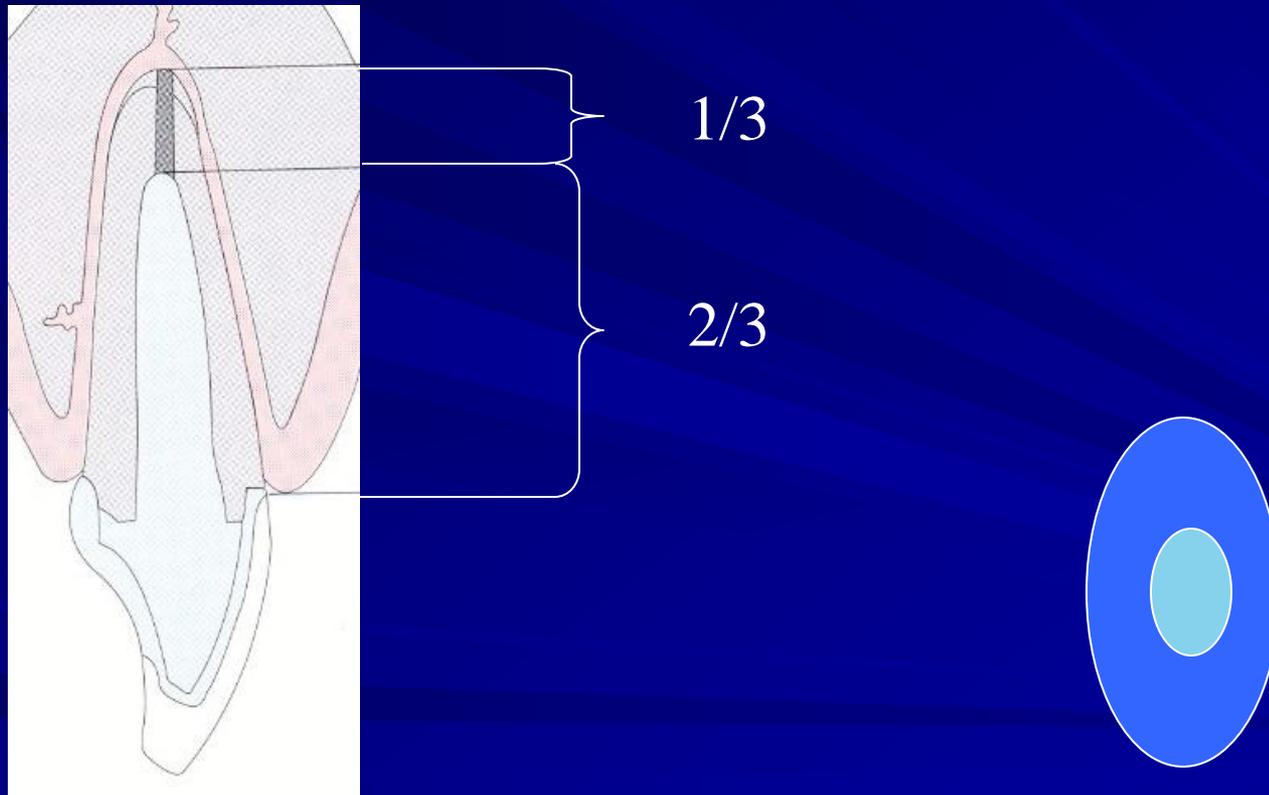


Wedge effect



Ferrule effect
Sörensen, Martinoff, 1984

Post



Schillinburg, Kessler, 1982

Efekt obroučky – ferrule effect

