

# Preclinical dentistry

## II. 3

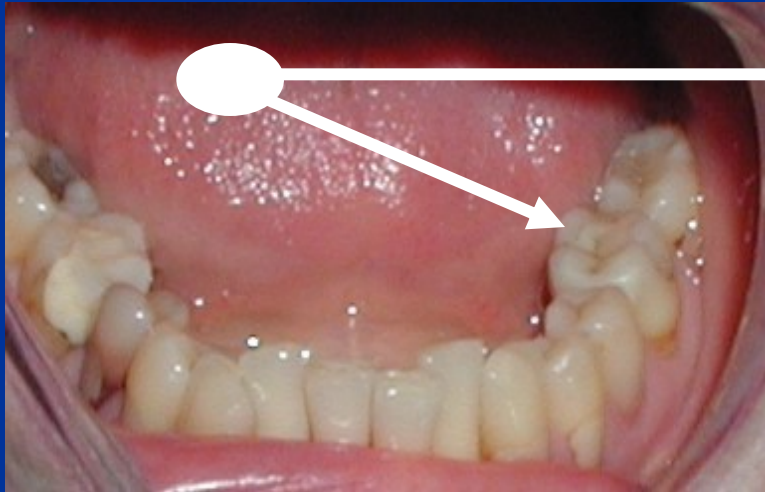
Inlays and onlays



**Indirect  
reconstructions  
inlays and onlays**

# Inlay

Rigid filling made out of oral cavity. Insertion using luting material



# Inlays made of metal alloys

## Indications

Large defects that is not possible to restore using amalgam or composite materials

Out of aesthetic zone

Golden alloys



# Inlays made of metal alloys contraindications

High caries risk

Small and shallow cavities

Aesthetic zone



# Metal inlay

## Fabrication

- Direct method – *seldom, for large central cavities only*
- Indirect method



# Contemporary trends

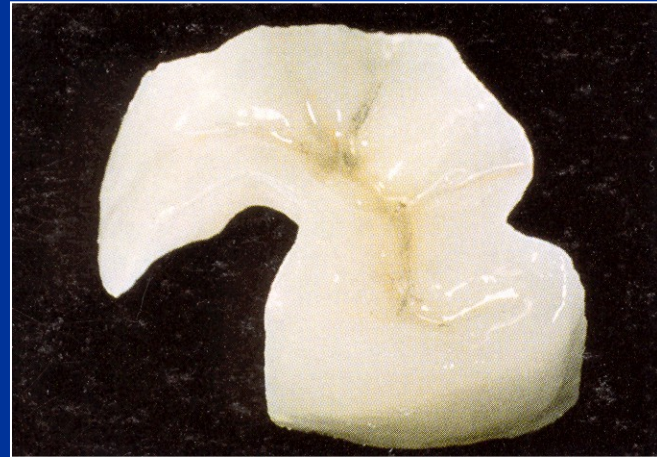
**Demands on aesthetic solution are increasing also in posterior area**



# Non metallic restorations

Composite

Ceramics



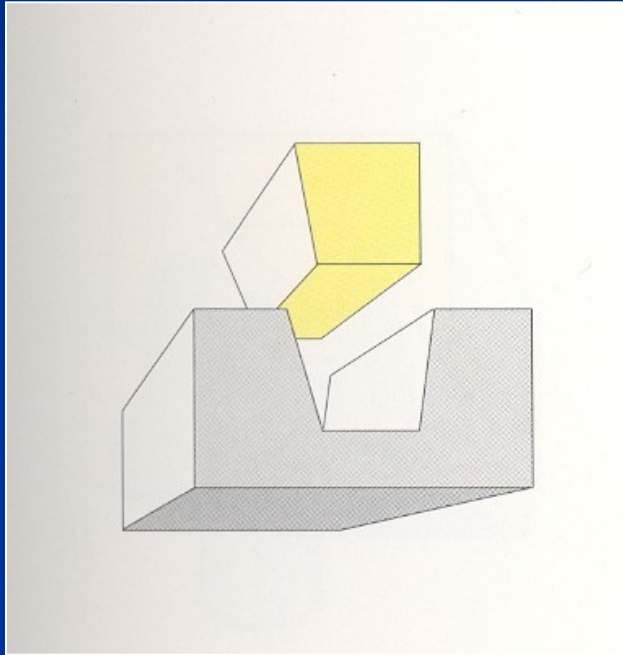


# Indications

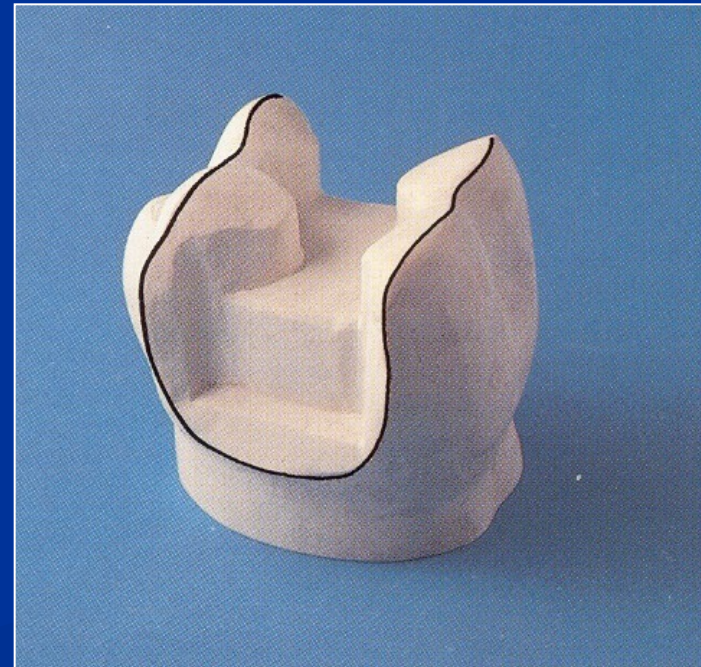
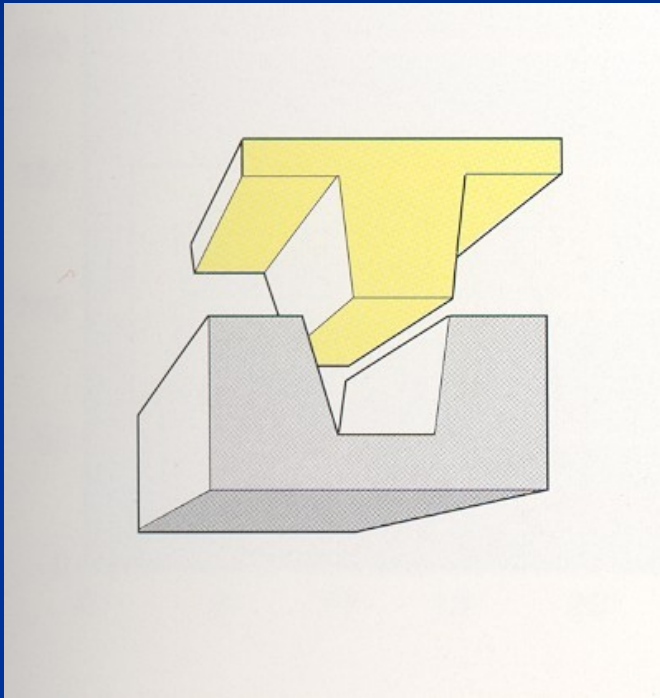
Large defects that are not possible to be restored using amalgam or composite materials



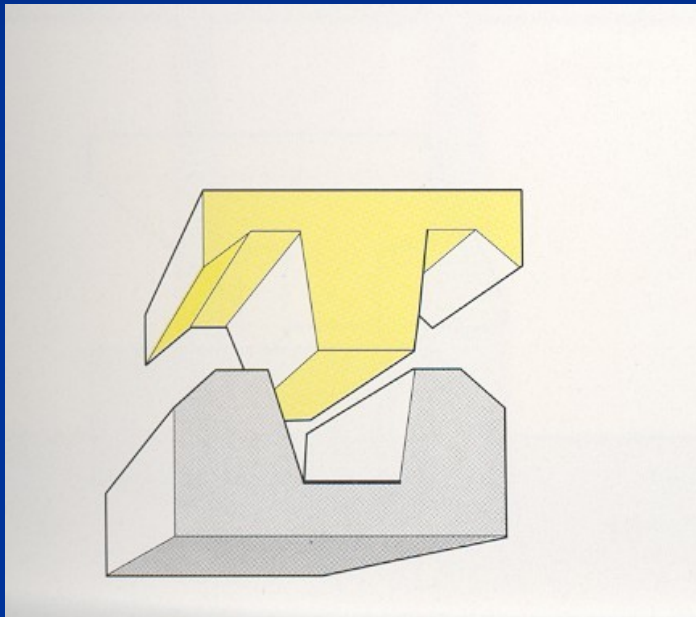
# Inlay



# Onlay

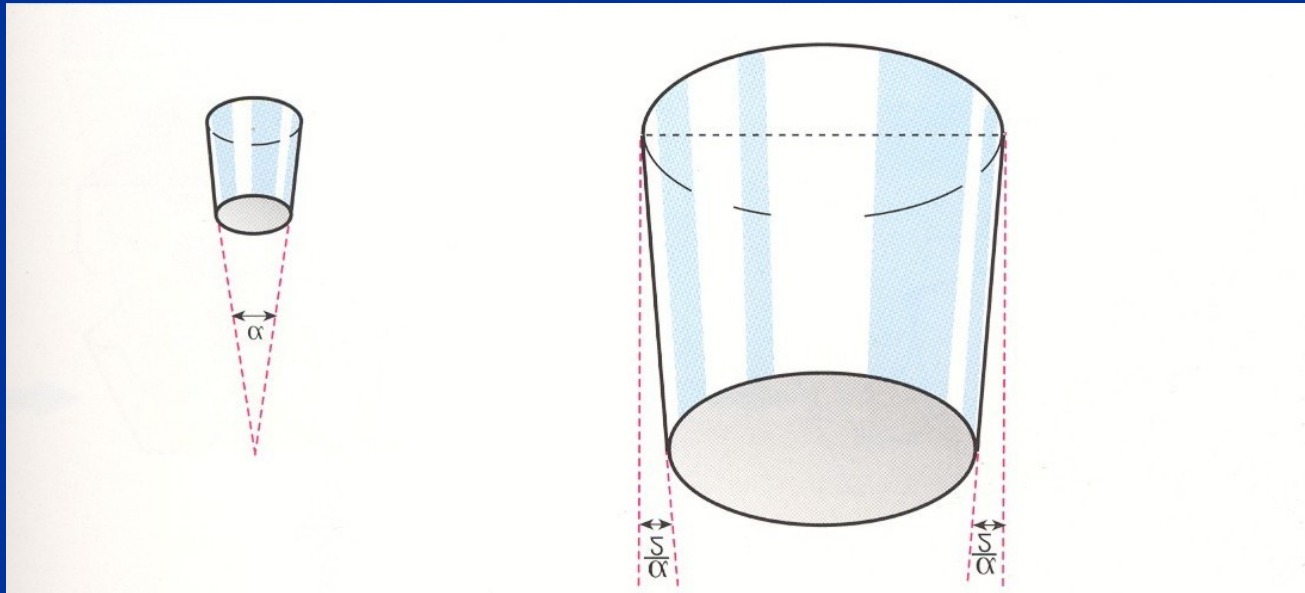


# Overlay

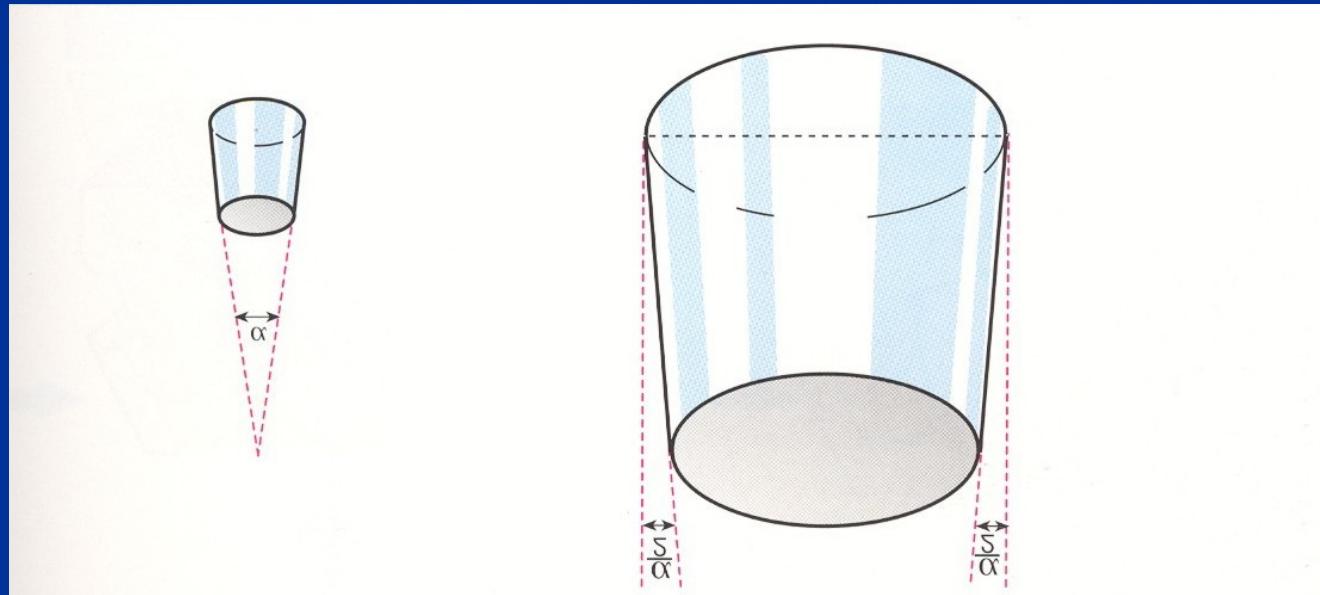


# Retention

Ability to face up to occlusal forces



# Geometry of preparation



# Angle of divergency

Optimum  $6^{\circ} - 20^{\circ}$



# Area of retention

Area of the contact of both surfaces (tooth and restoration)

- *Surface friction*
- *Luting material*





# Importance of the luting material



# Metallic inlays

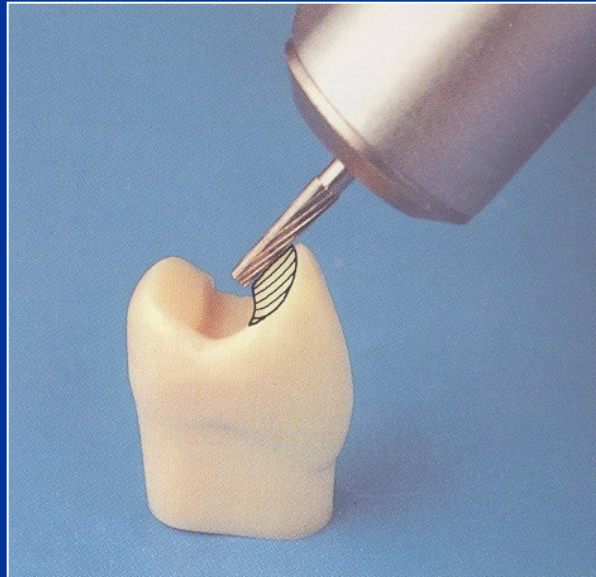
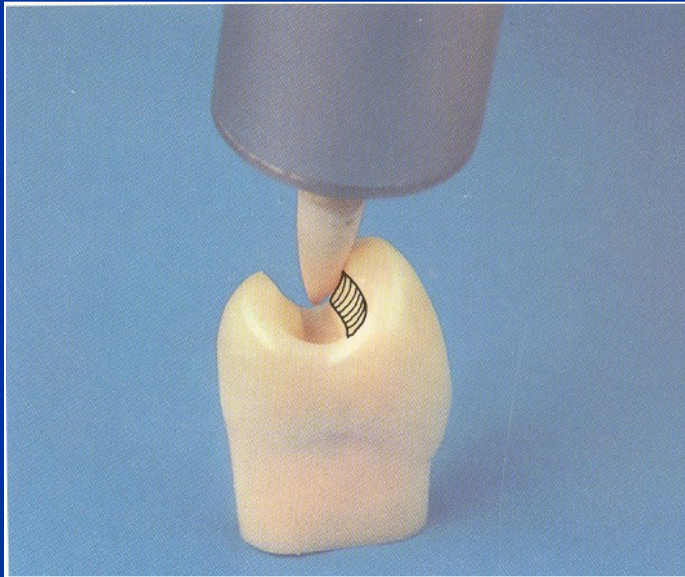
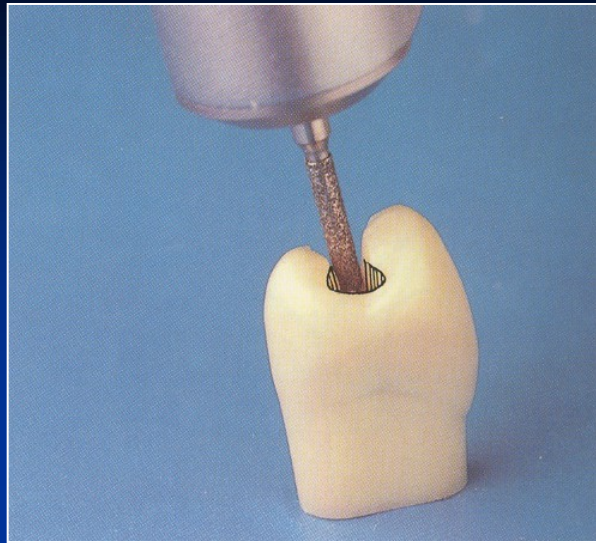
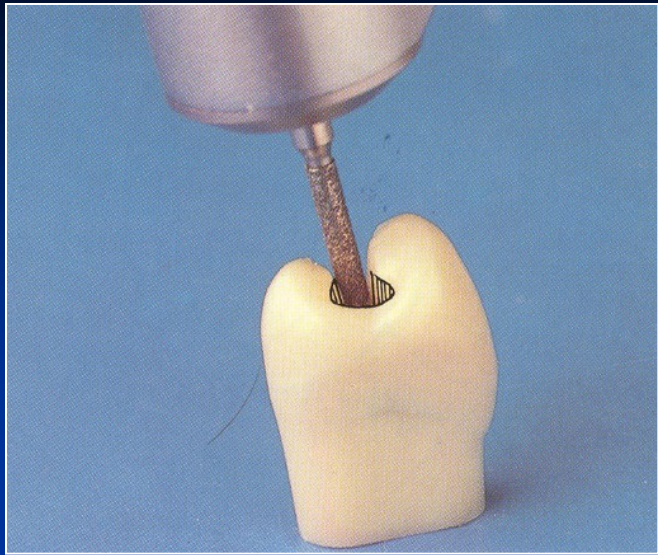
Zinc oxide phosphate cement



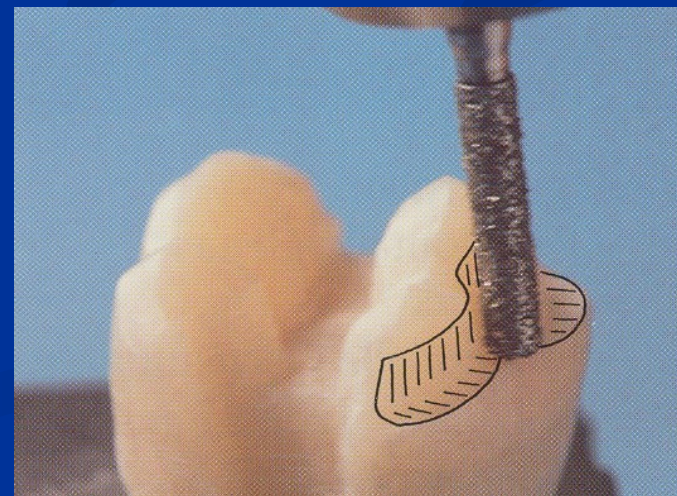
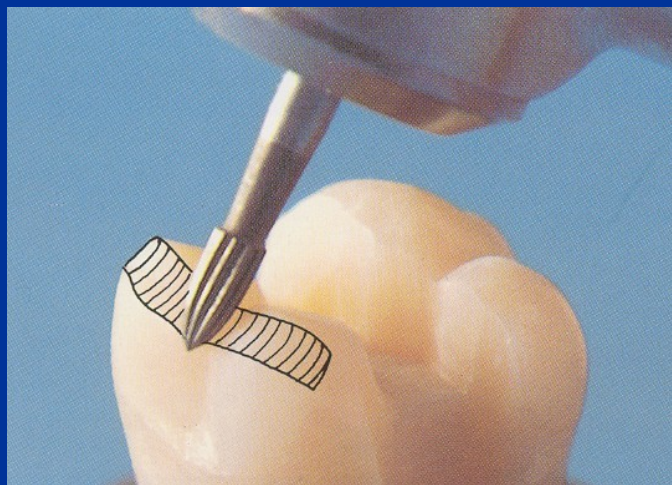
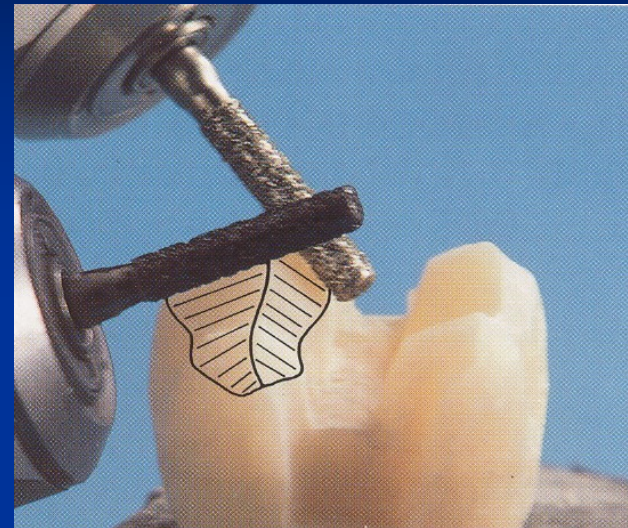
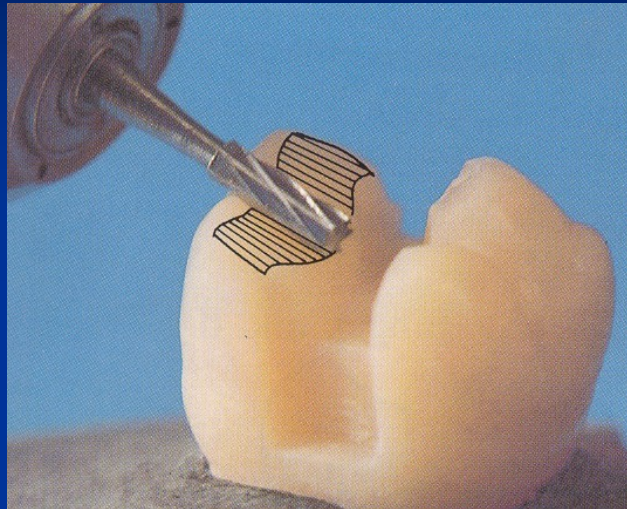
# Preparation

- Standard diamond – blue:  
Cavosurface margin
- Fine diamond – red or special hard metal  
bur  
Finishing of the preparation



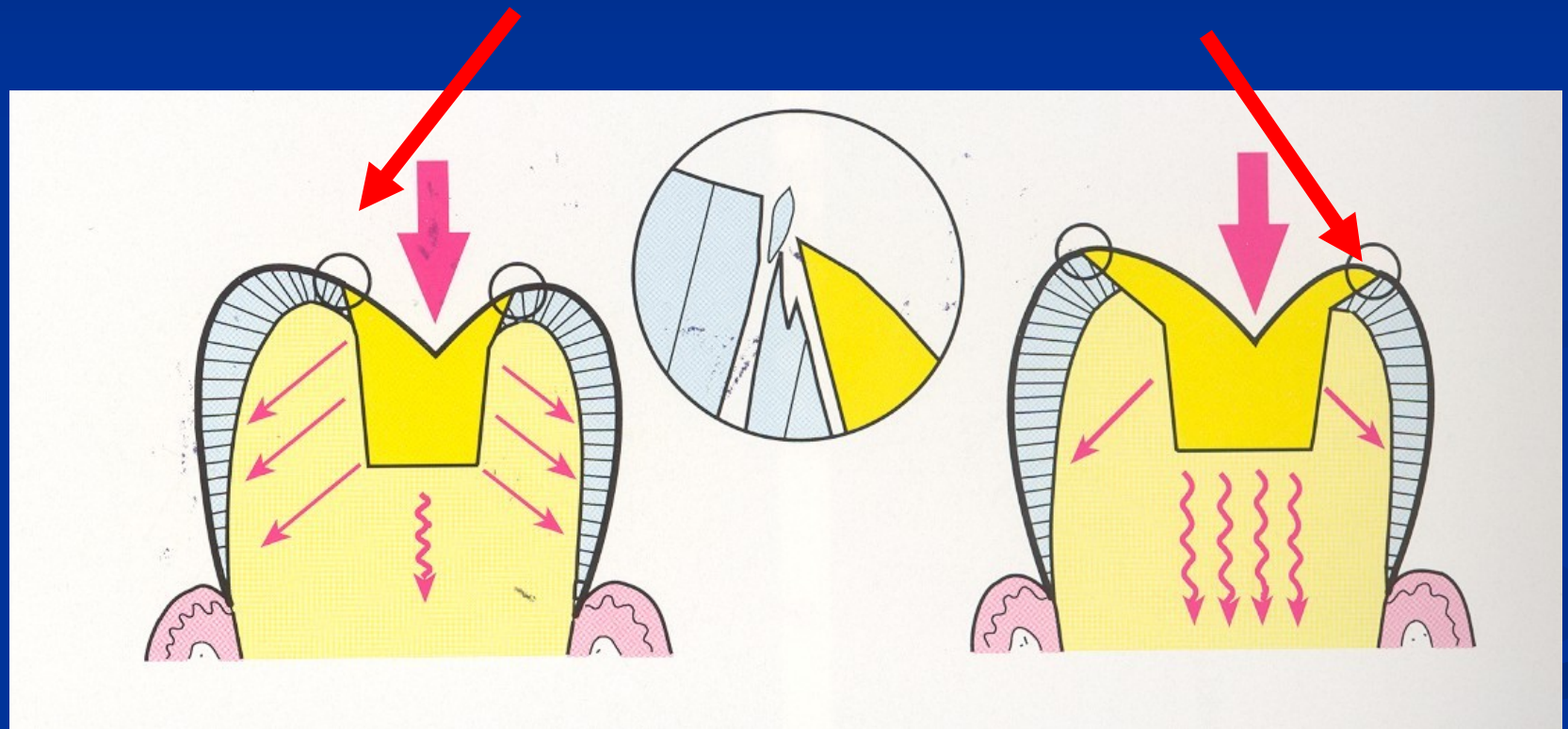


# Overlay



# Schůdková korunka

# Enamel must be beveled – only in outer half



# Cavity for inlay II. class

- Divergent walls in occlusal cavity as well as in proximal box
- Extention for prevention
- Enamel is beveled also in occlusal part of the cavity



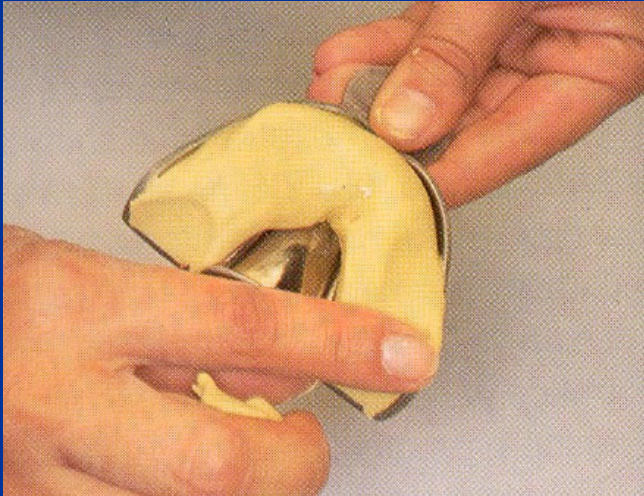
# Impression technique elastomers

- Dual viscosity technique

One phase







# Registration of intermaxillary relationships

Wax registration

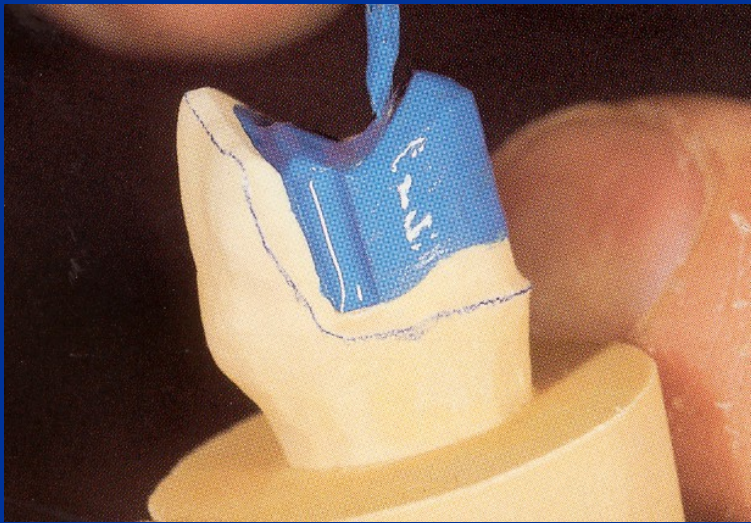
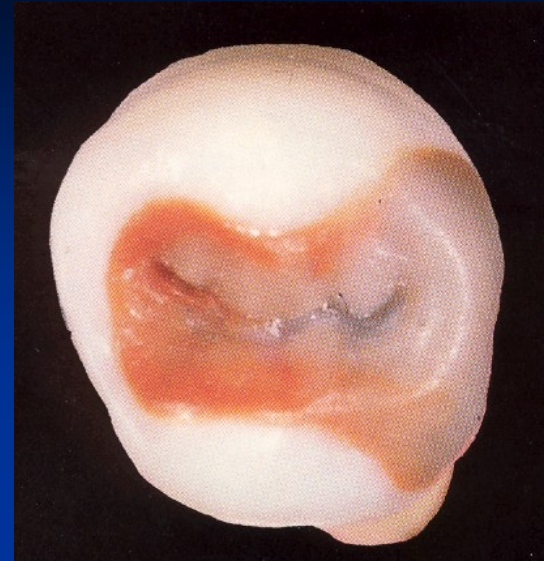
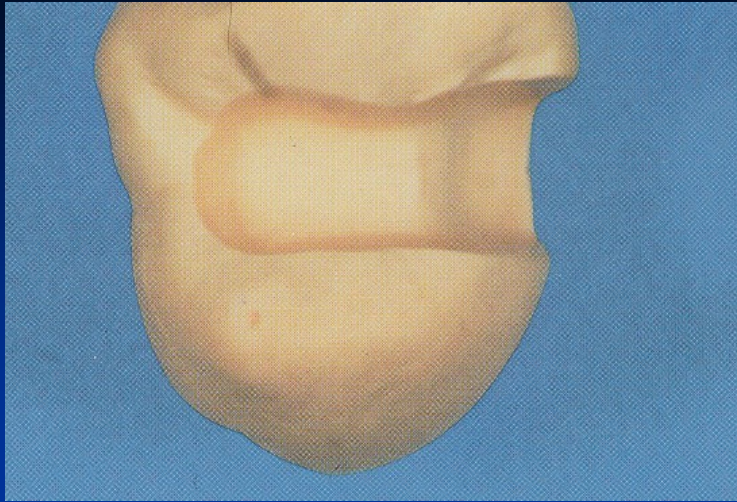


# Antagonal impression alginate

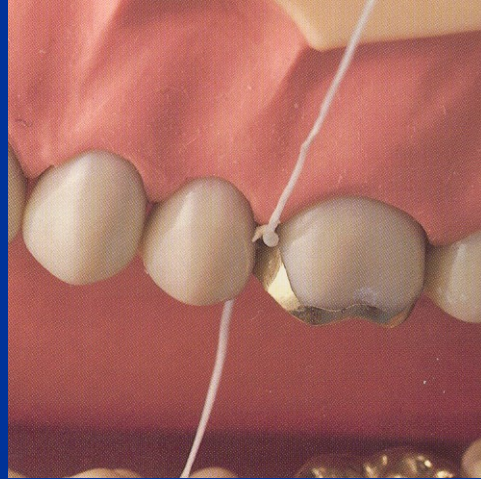
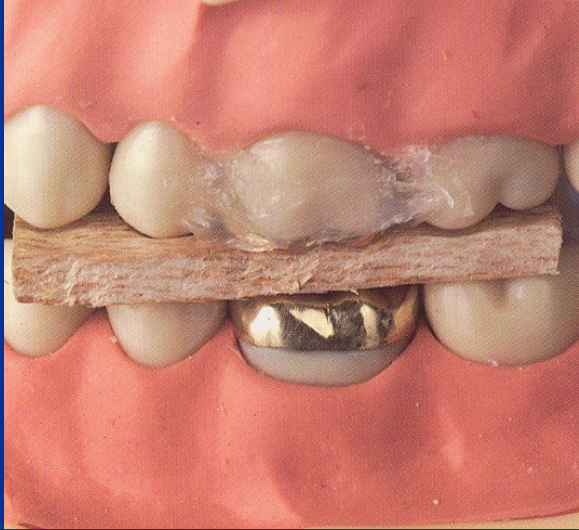
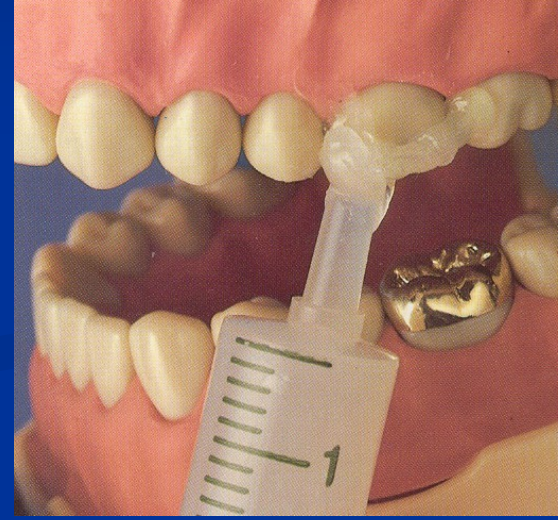
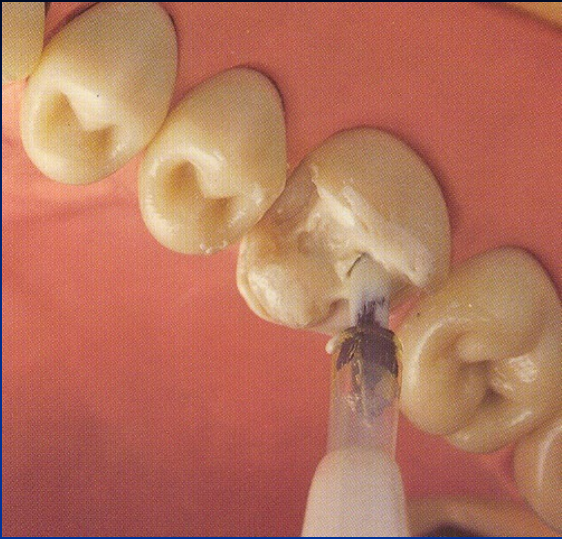


# Fabrication

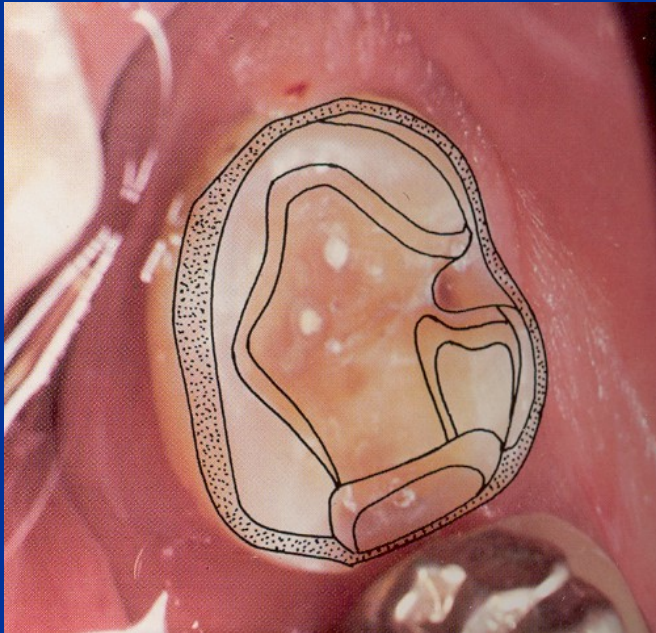




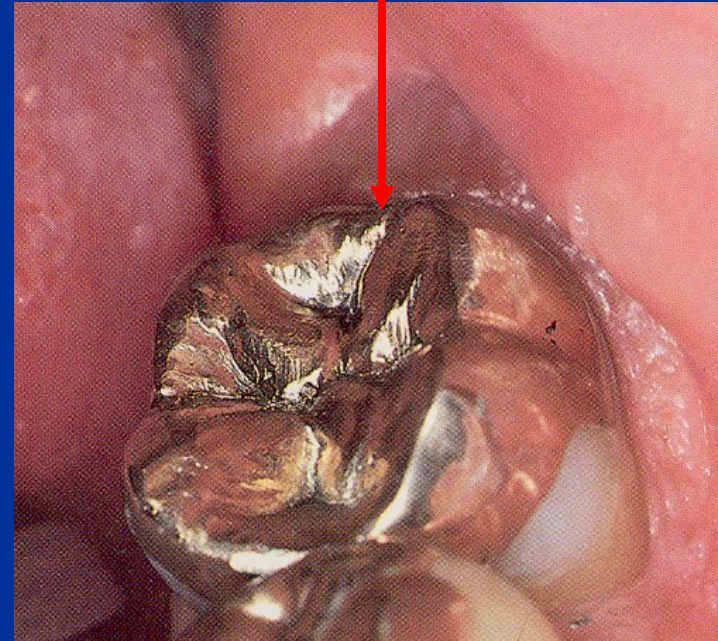




# Preparation



# Restoration



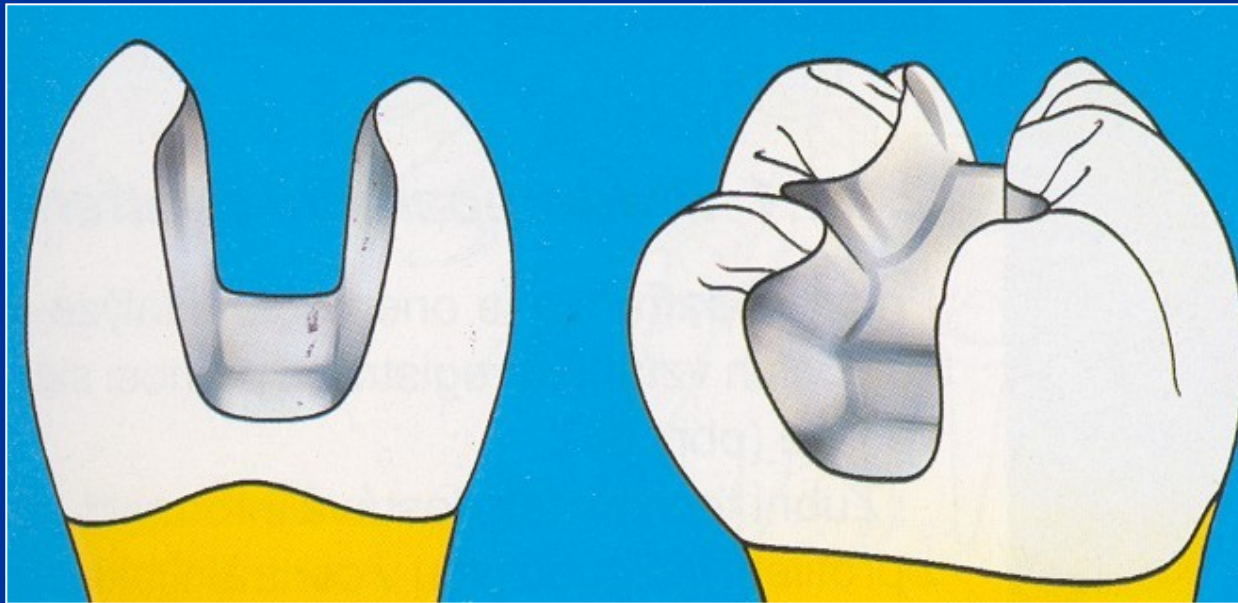


# Composite and ceramic inlays and onlays



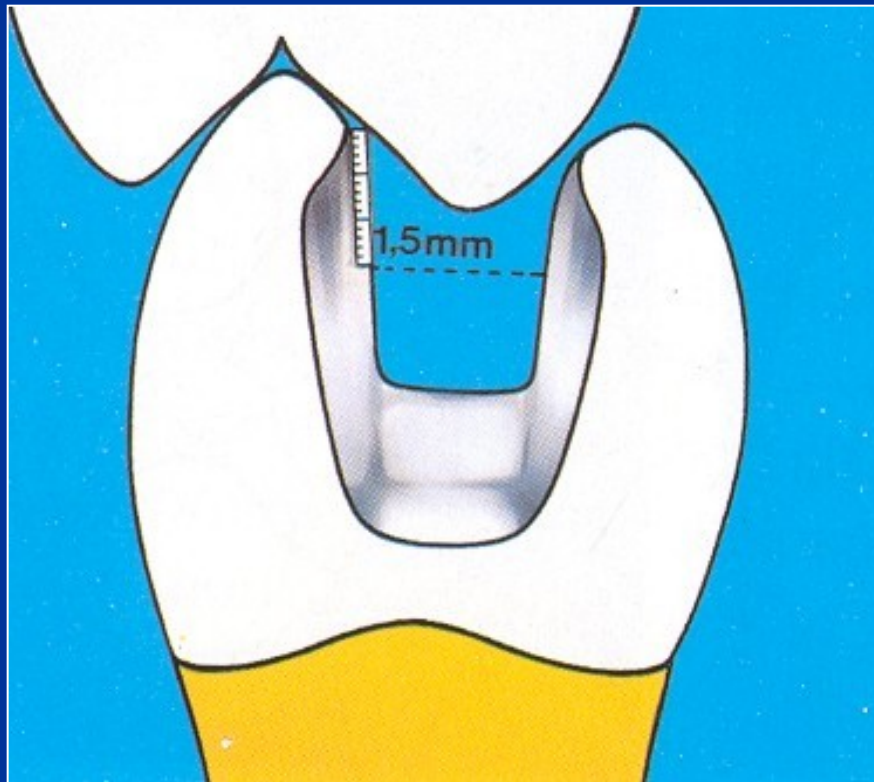
# Preparation

Cavity without any undercuts with smooth borders. Divergency appr. 6°



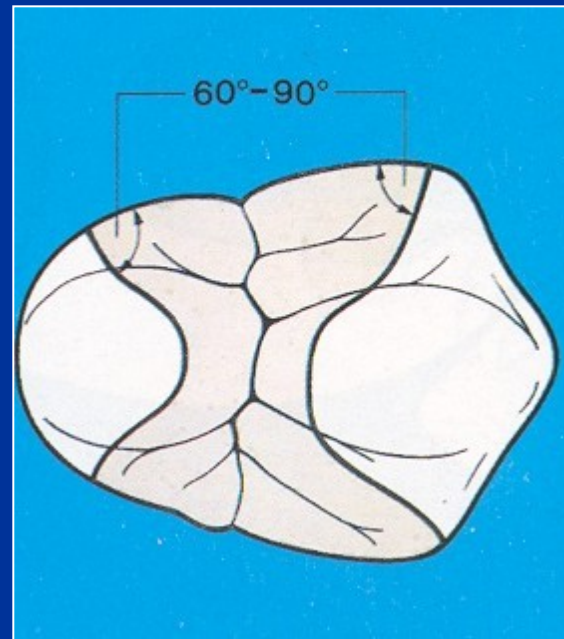
# Preparation

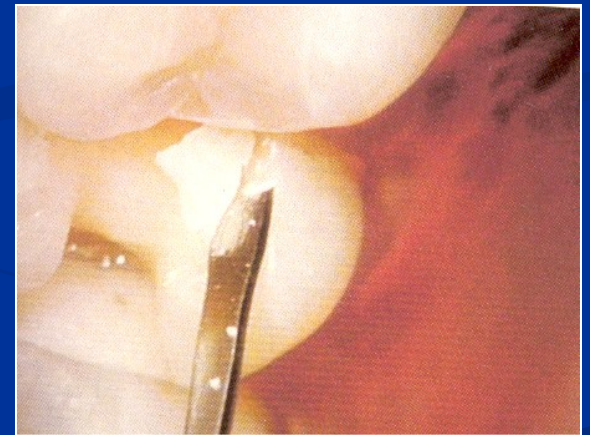
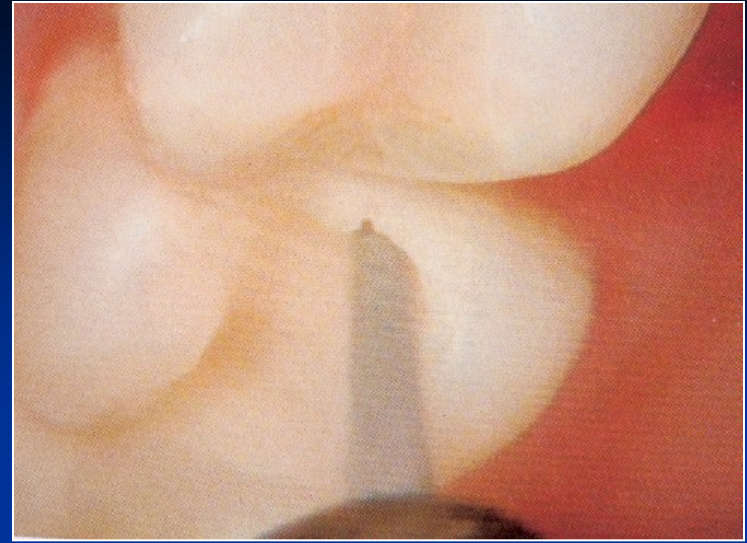
Thickness of the material 1,5mm - 2 mm



# Preparation

- Cavo surface angle, smooth borders, slight bevel in proximal box only, not on occlusal surface





# Before impression

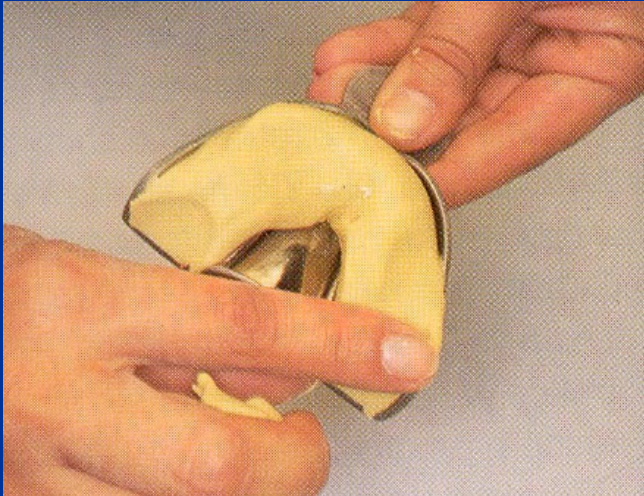
Closure of dentine tubules – adhesive treatment and flowable on the walls



# Impression Elastomers

One phase







# Registration of intermaxillary relationships

Wax registration



# Antagonal impression alginate



# Registration of intermaxillary relations

Wax



# Fabrication – various procedures



# Cementation of ceramic and composite inlays

- Adhesive cementation
  - Special composite materials with lower viscosity dual curing
  - Micromechanical retention



# Adhesive cementation

Hard tissues – adhesive procedures: acid etching, bonding, priming)

Restoration – sandblasting or special etching, bonding.



