

The aim of orthodontic treatments

To treat esthetic complains

To solve the functional problems (chewing, speech, TMI)

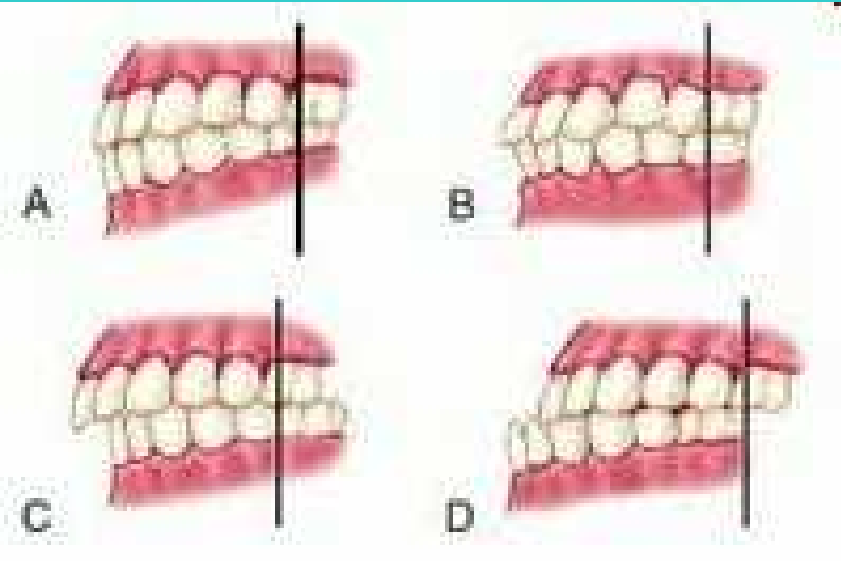
Prevention

(Unreal expectations: improvement the quality of life: better job, new relationships, marriage etc.)



Skeletal and dental anomalies are treated

Angle classification
(based on: anteroposterior relationship of the jaws))



Angle II. anomalies



Angle III. anomalies

Angle I. normocclusio



Angle II. - Distocclusio



Angle II/1



Angle II/2



Angle III – progenia - mesiocclusio



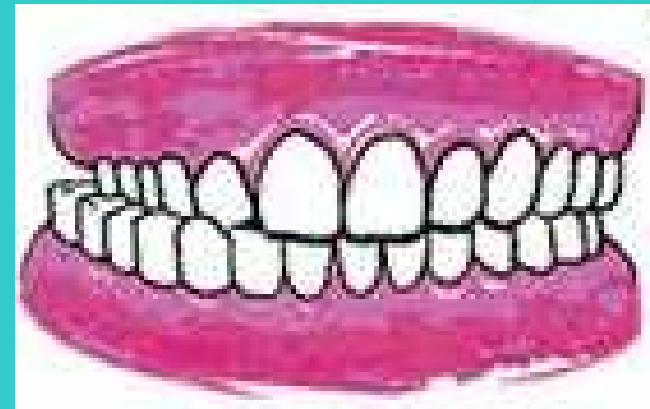
Skeletal and dental anomalies are treated

Vertical problems

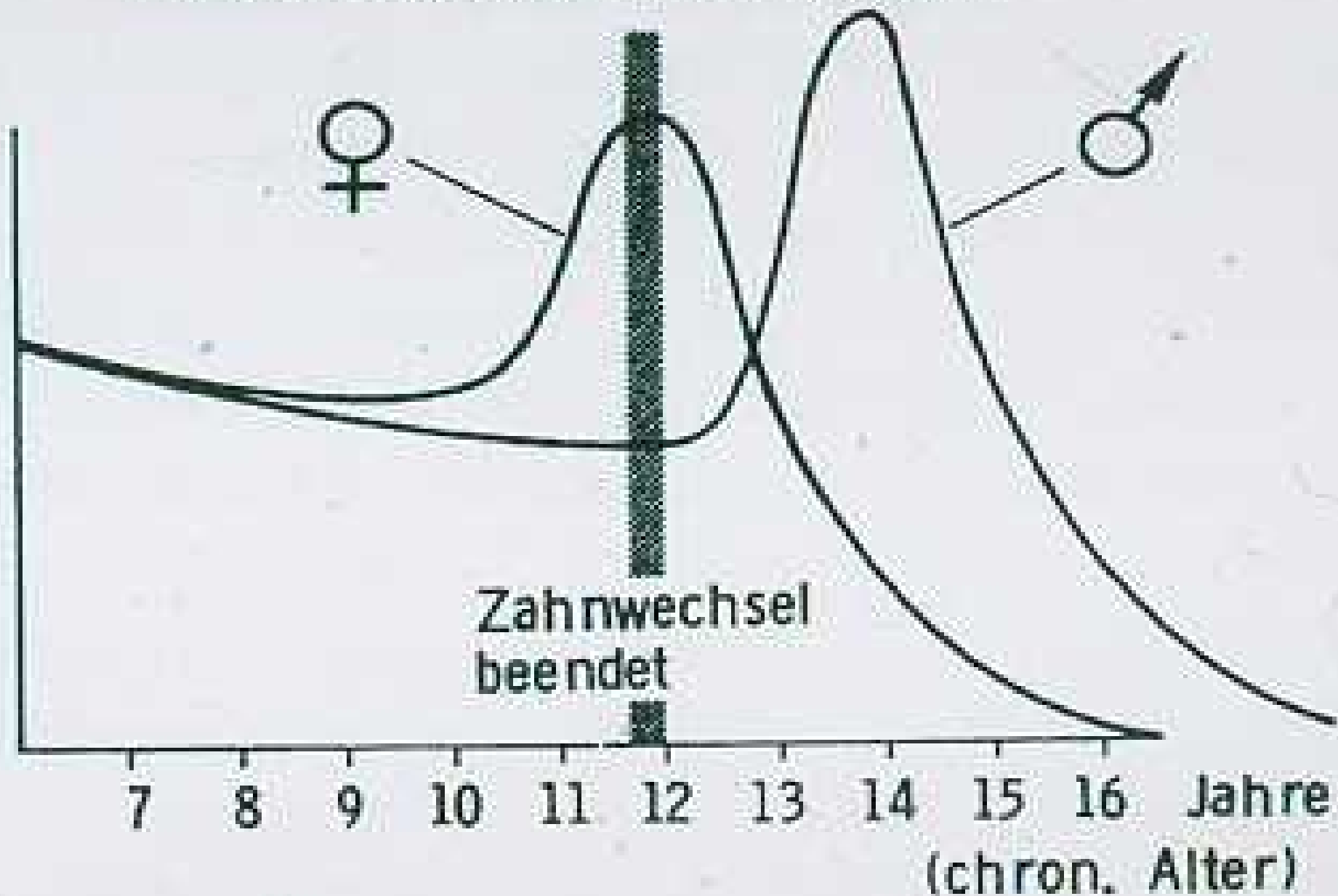
Deep bite and open bite



Transversal problem



Wachstumskurven nach TANNER



Grouping of orthodontic anomalies

Removable appliances



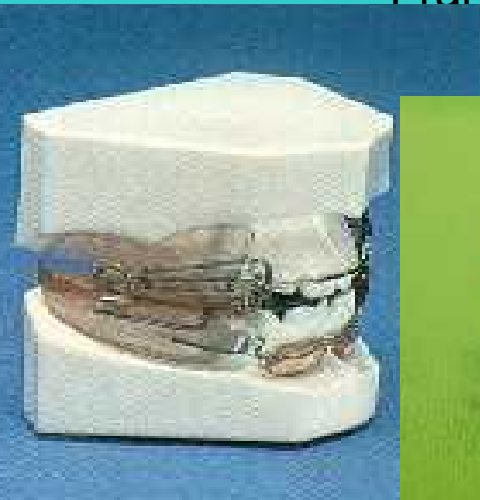
Fixed appliances



Removable appliances

- Active plates
- Passive plates
- Functional, bimaxillary appliances

(To improve the relationship between the upper and lower jaw)
Frankel-appliance, Hansa-appliance, Bionator, Aktivator



Functional, bimaxillary appliances



Before
After

Grouping of plates

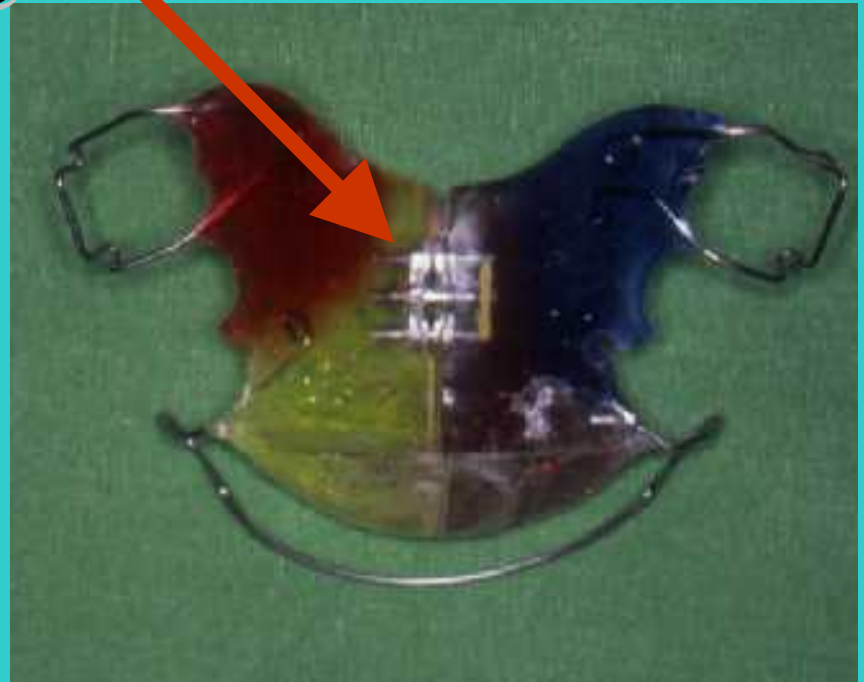
Passive

Active



Upper passive (retention) plates

SCREW

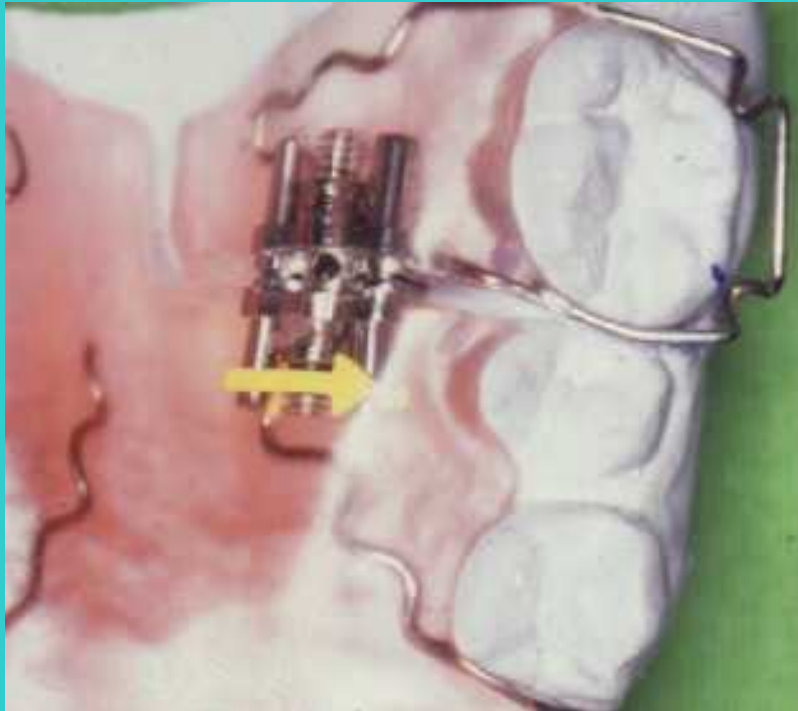


Upper active plate

Active plates

screw !!!!!

The screw is activated in the direction
of the arrow (10 days, 2 weeks)



Elements of removable appliances

- Acrylic base plate
- Labial bow
- Clasps
- Active element



(Hawley) retention plate



Elements of removable appliances

- Acrylic base plate
- **Labial bow** 0,7-0,9 mm stainless steele wire
- Clasps
- Active elements



Labial arch

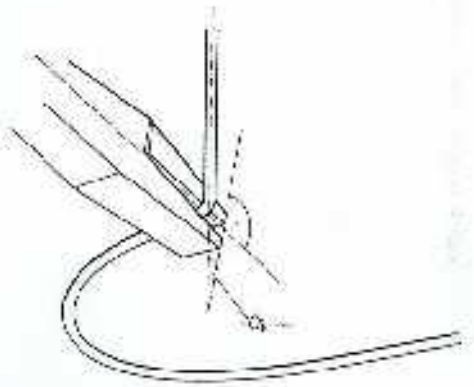
Labial arch holds the appliance in the mouth and able to tilt the incisors backward (retrusion)



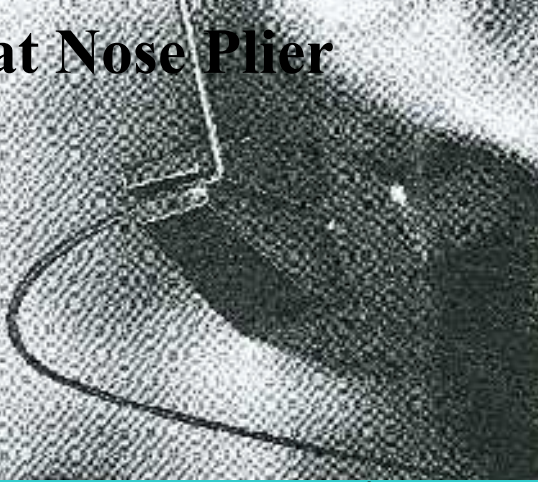
0,7 – 0,9 mm stainless steel alloy

Labial arch

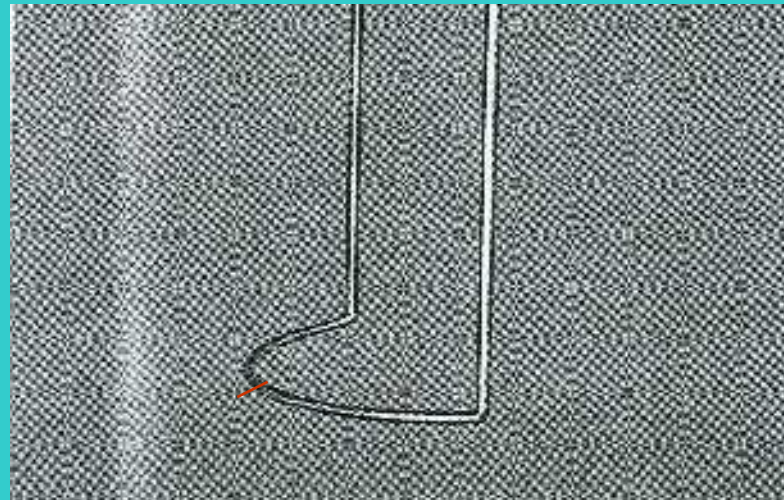
Vertical bending: right-angle 90°
by one third of canine (mesial arm)



Flat Nose Plier



Flat Nose Plier



or

Classic Universal Plier



Labial arch

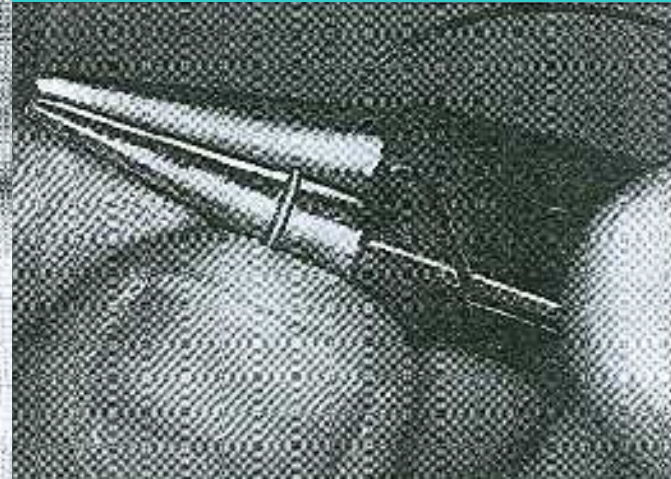
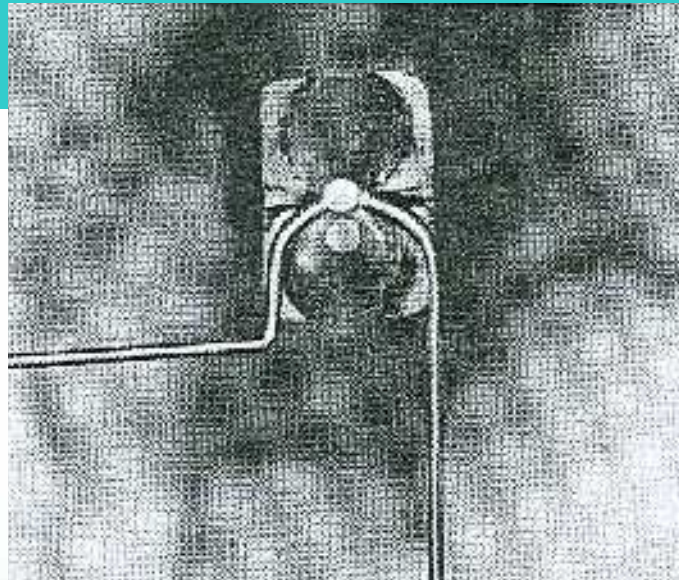
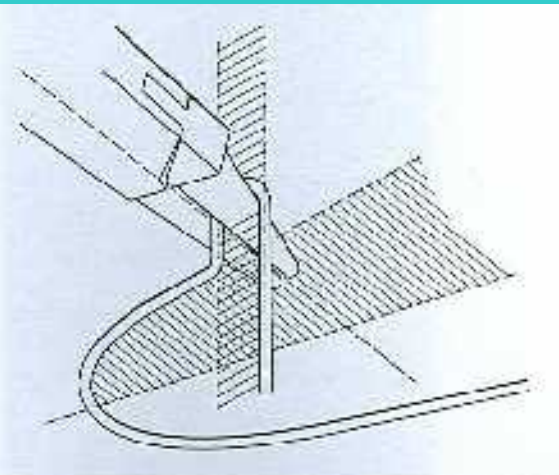
- Bend the loop (Wire bending plier,

Round & Concave Plier



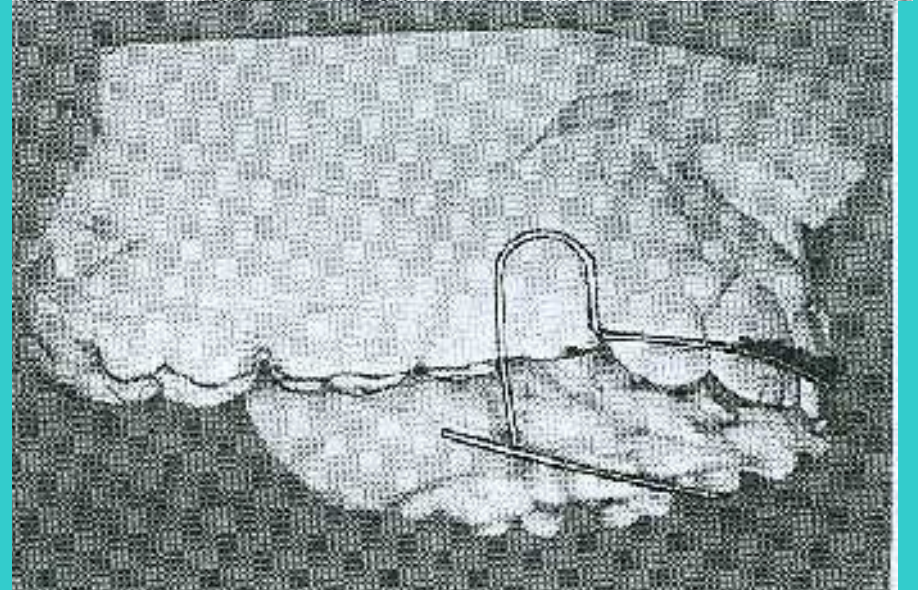
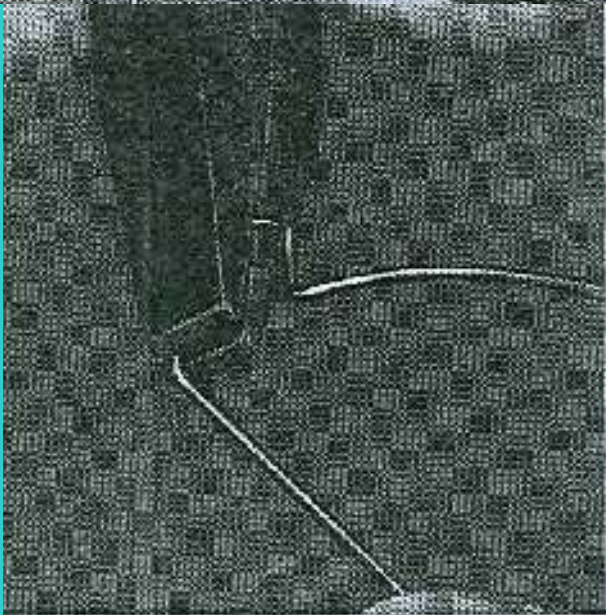
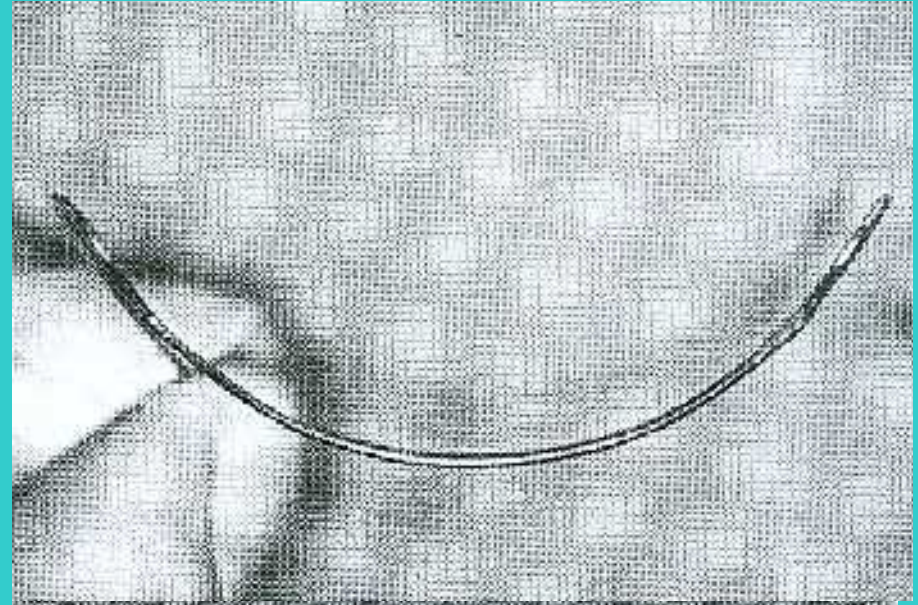
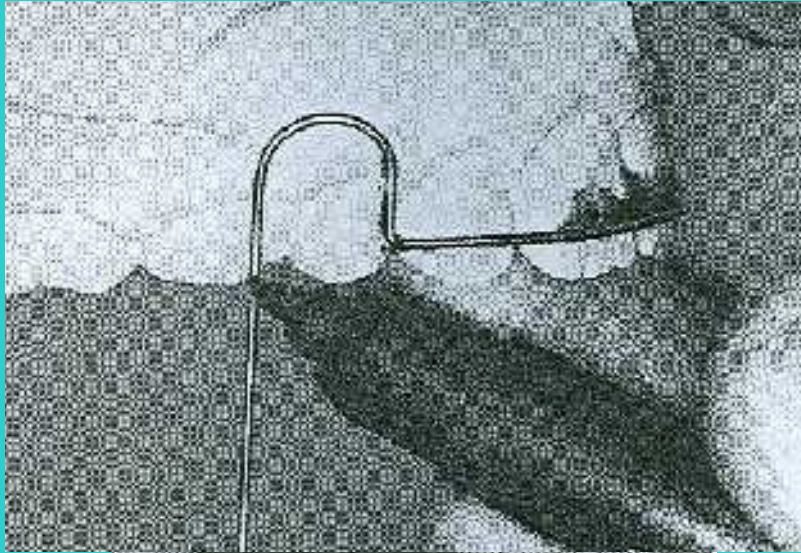
or Double Rounded Jaw Plier

- The mesial and the distal branches of the loop have to be parallel



Labial arch

Bend the end of the wire palatally



Elements of removable appliances

Acrylic base plate

Labial bow

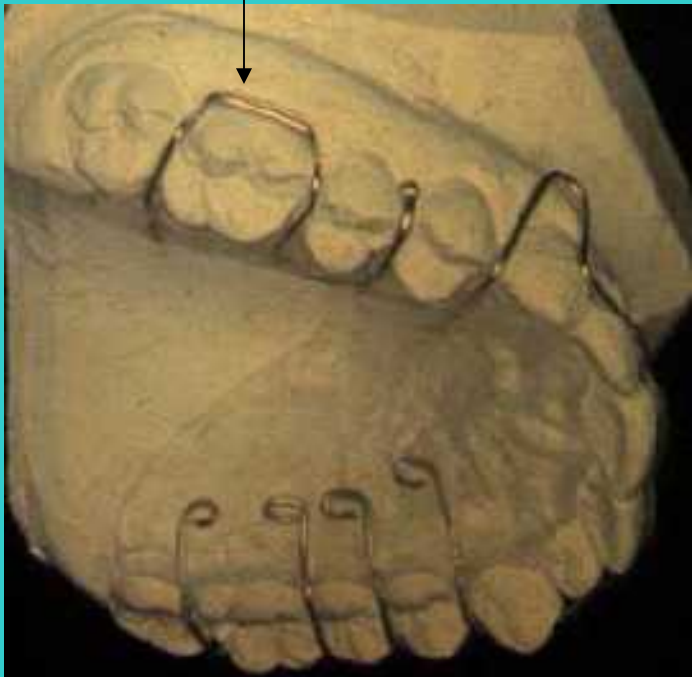
Clasps

Aktív elemek

Adams clasp



Adams clasp



Adams clasp



Elements of removable appliances

Acrylic base plate

Labial bow

Clasps

Active elements

Arrow clasp



Arrow clasp

The elements of the plates

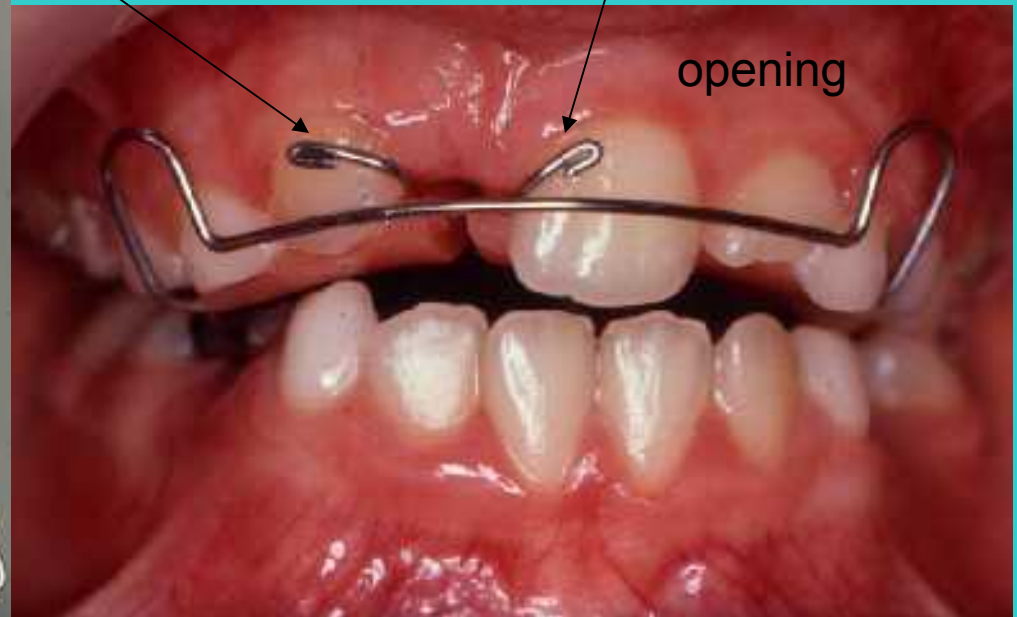
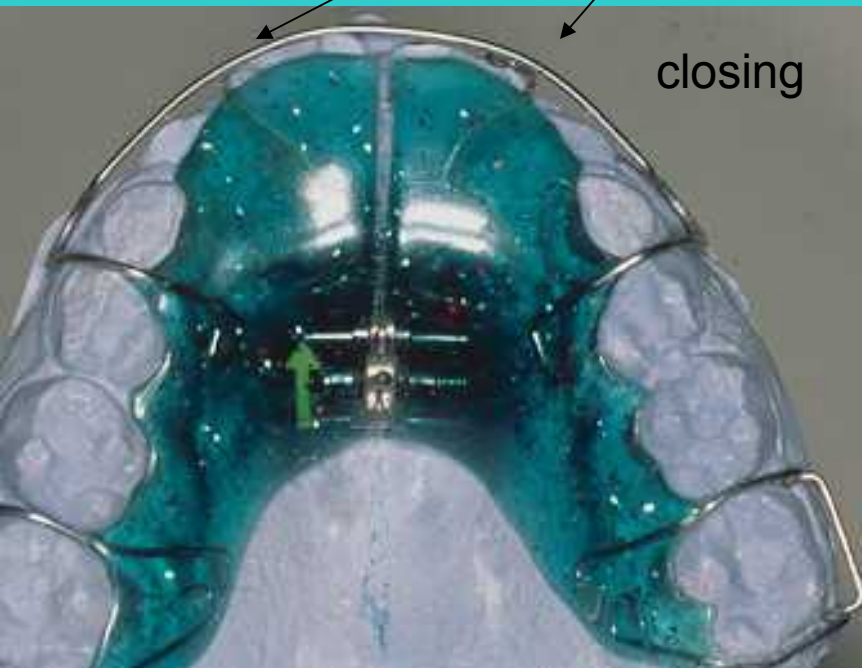
Acryl basic plate

Labial bow

Clasps

Active elements-springs

Free-ended or finger springs



The elements of the plates

Acryl basic plate

Labial bow

Clasps

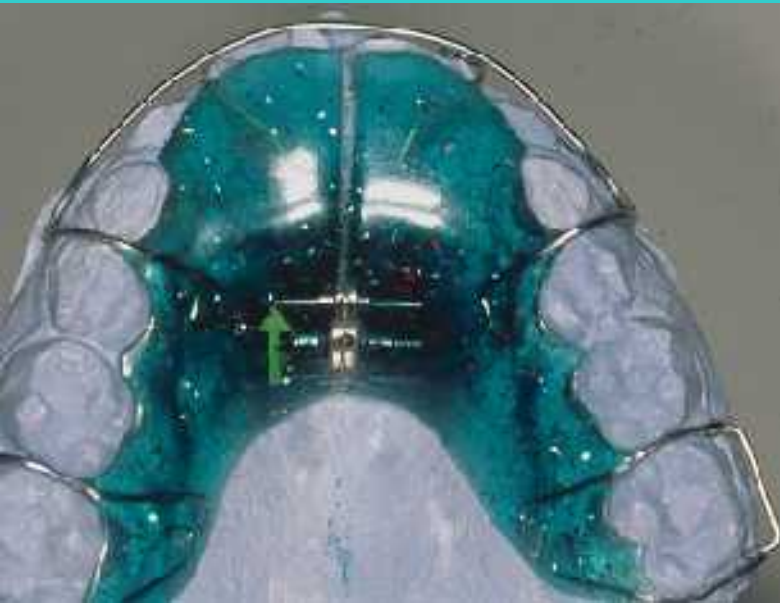
Active elements

•console-like springs



Active plates

- Upper typical active plate (the screw is in the middle of the appliance



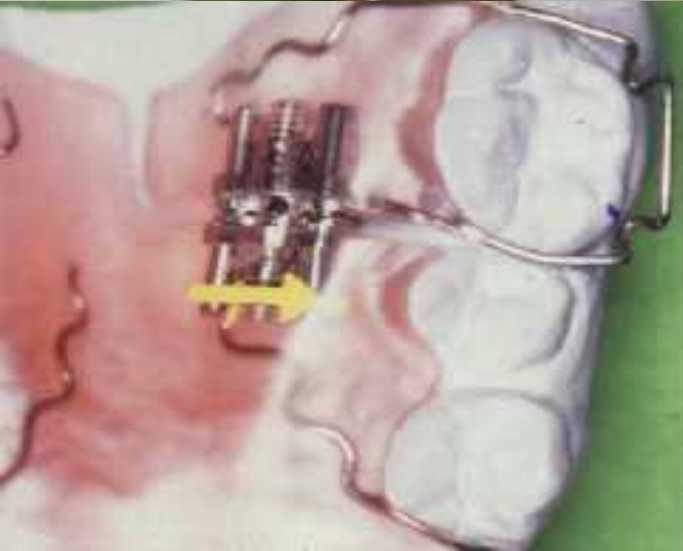
Lower typical active plate



•

Active plates

Upper atypical active plate (the screw is placed assymmetrically)



Lower atypical active plate



Active plates



Upper atypical active plate with lateral bite raising
(for the treatment of lateral crossbite)

Active plates

Y-plate



Upper Y-plate



Lower Y-plate

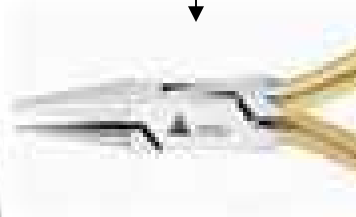
Bertoni-screw (instead of Y-plate)



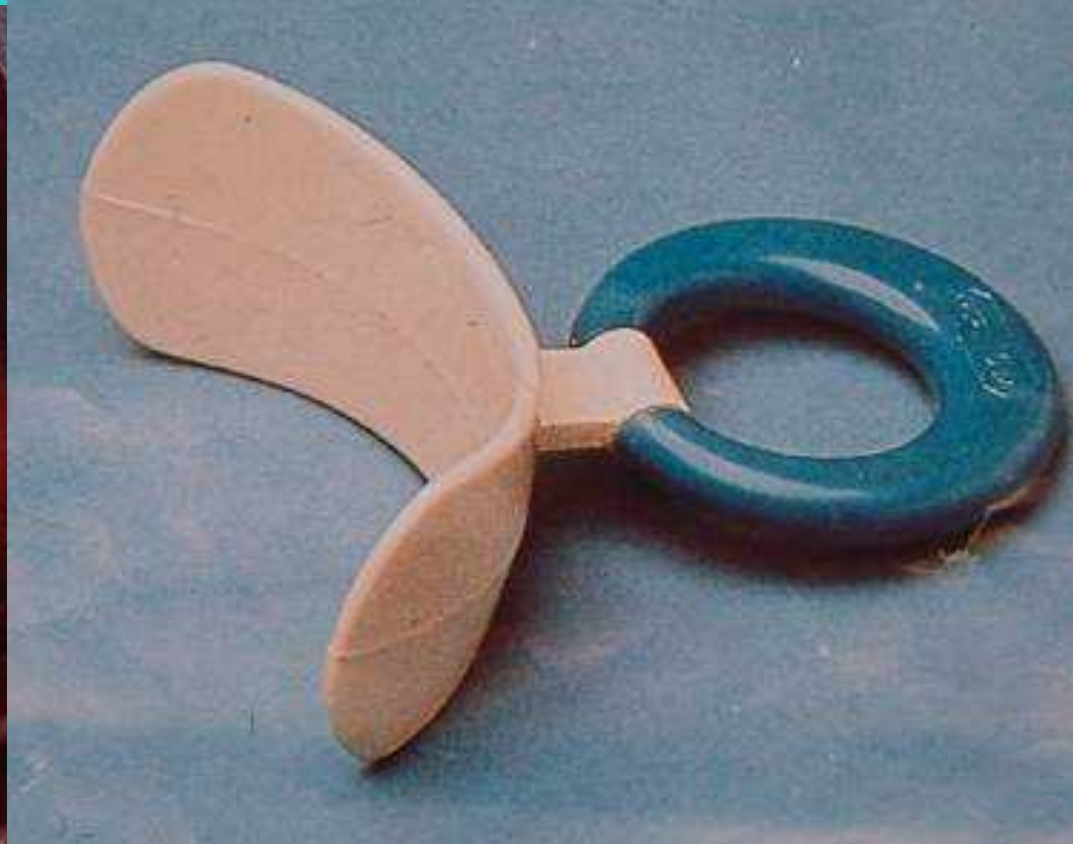
Flat nose plier

Wire bending plier

Classic universal plier



Oral screen



Grouping of orthodontic appliances

Intraoral appliances

Extraoral appliances

Intra-, extraoral appliances

Extraoral appliances:

Chin cap –
in progenie (III. class)



Intra-, extraoral appliance: Reverse Headgear Facemask

sagittális expansion of the maxilla



Inta -, extraoral appliance: headgear

- Distalisation of upper jaw (or upper molars)
- Influence of vertical anomalies



Elements of fixed appliances

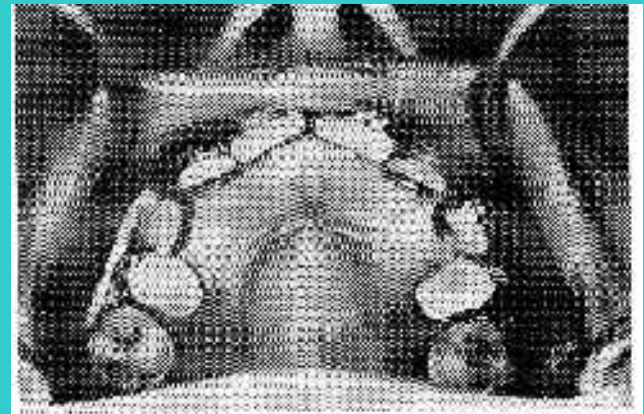
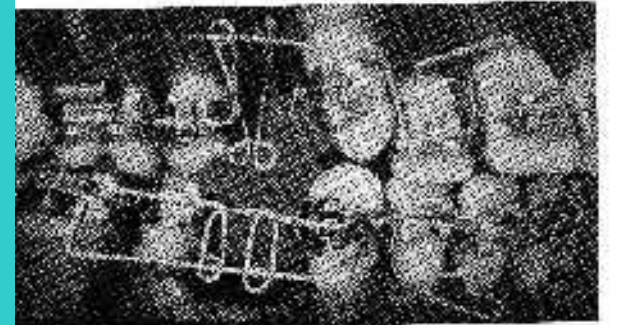


Fixed appliances

- Multiband appliances
- Direct bonding technic

Elements:

- Brackets
- Bands on the molars ??
- Buccal tubes
- Archwire
- Ligatures

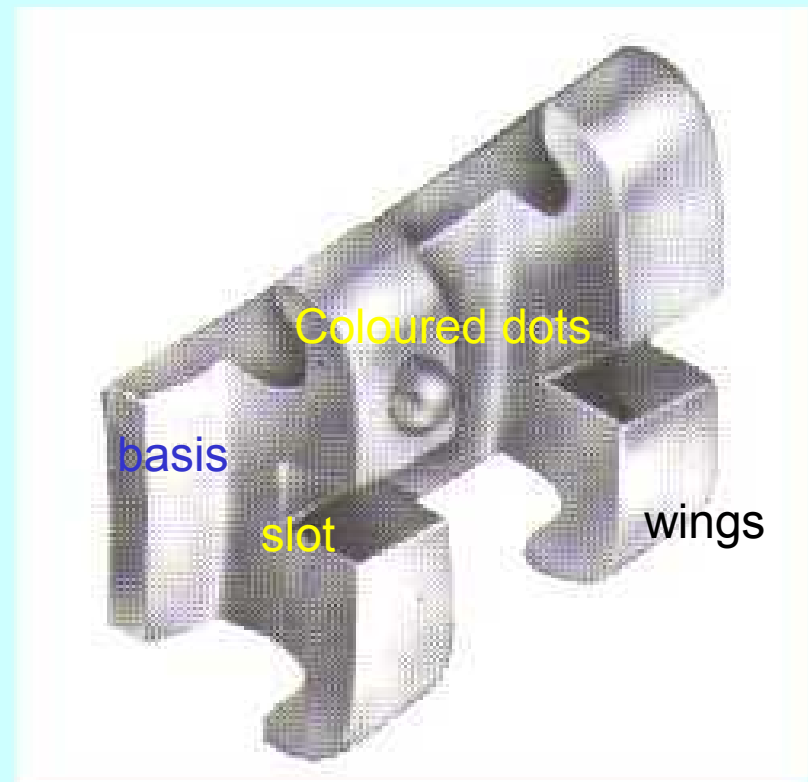


Elements of fixed appliances (multibond, multibracket appliances direkt bonding technic)



Components of the **Multiband** Appliance

- Rigid connectors, called **molar tubes** and **brackets**
- Archwires, and other elastic sources of force
- Auxiliaries
(Everything else needed to get the job done.)



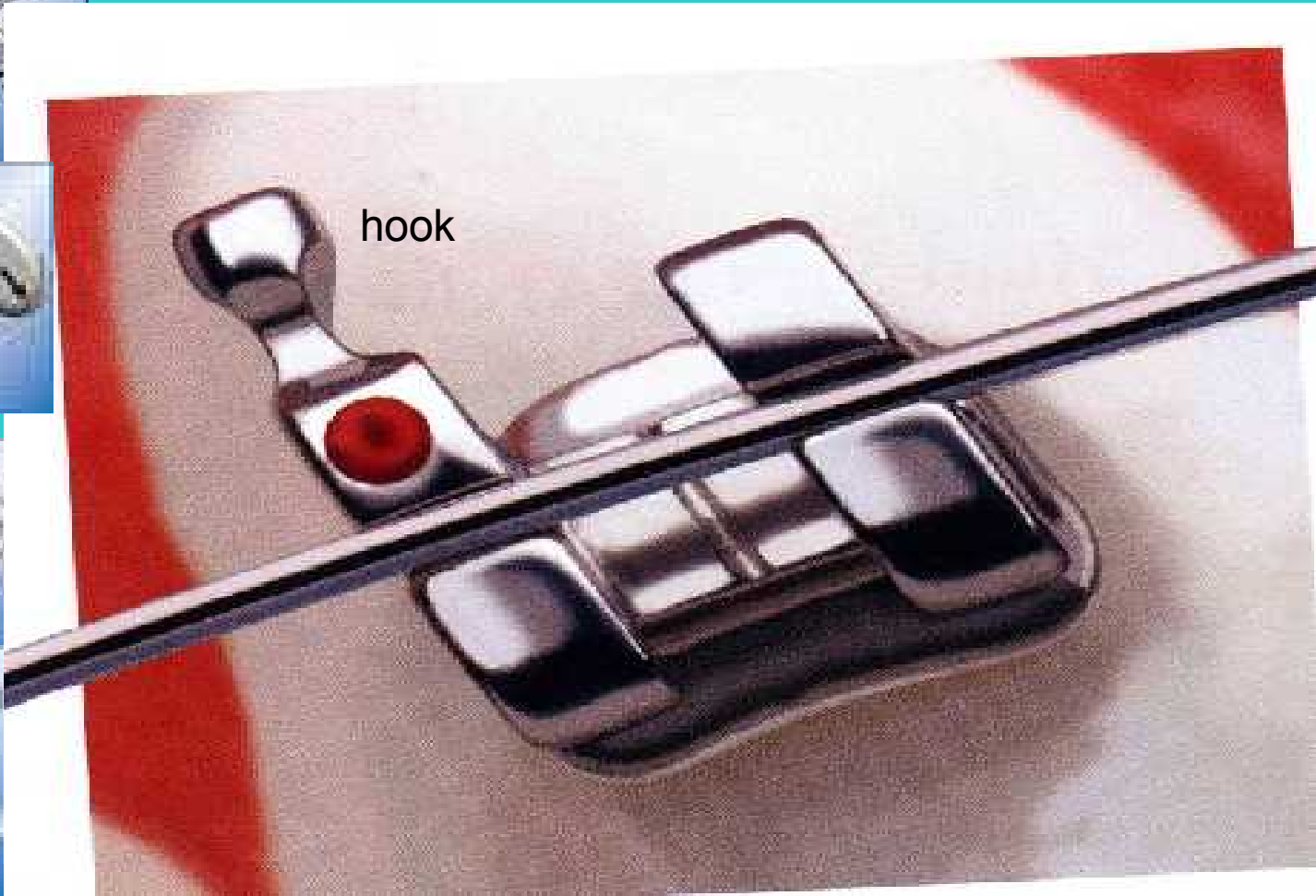
The dot is always on the distogingival wing of the bracket.

Elements of fixed appliances

Bottom of the bracket



Huge surface for the bonding material



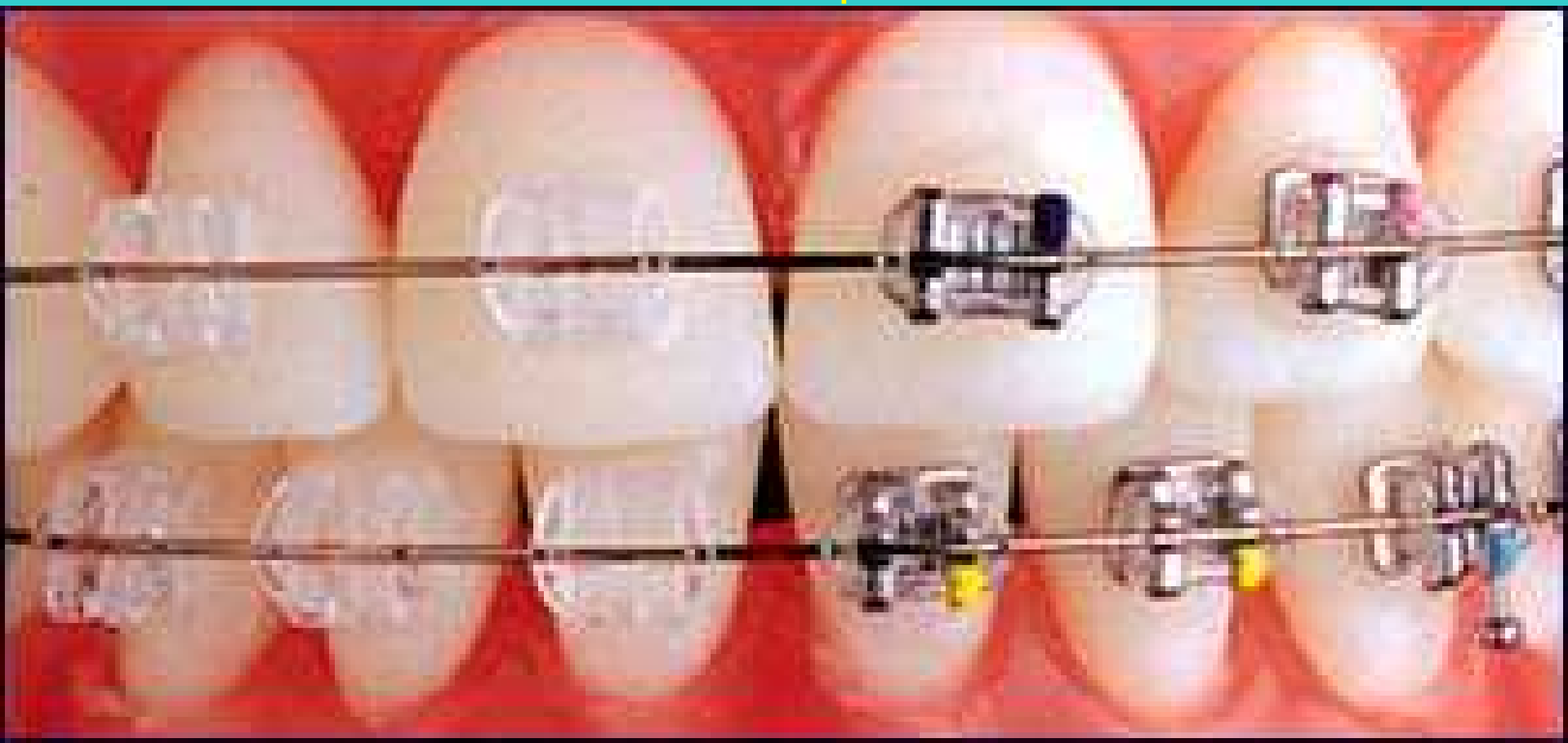
Metal brackets

- Stainless steel
- Titan
- Gold





Ceramic or plastic brackets



Ceramic brackets

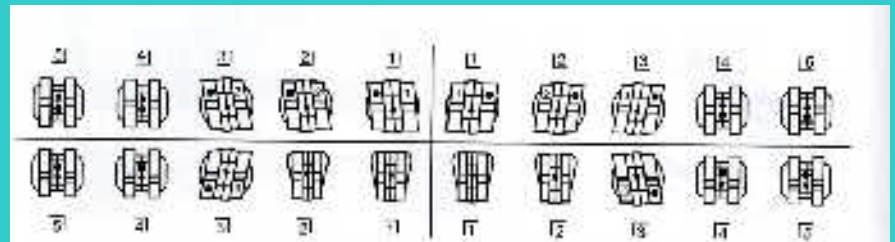
- Disadvantages:
 - expensive
 - it's no possible to renew
 - fragile
 - difficult to remove
 - more difficult to set the ligatures

Advantage:

- esthetic

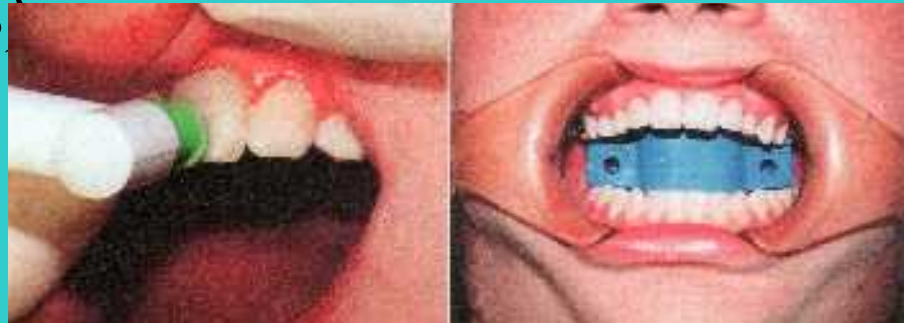
Signs on the brackets

- Arrow in the long-axis of the brackets
- The arrow shows the gingival part of the bracket
- Dot on the distogingival wing (by upper incisors and canines)



Bonding brackets

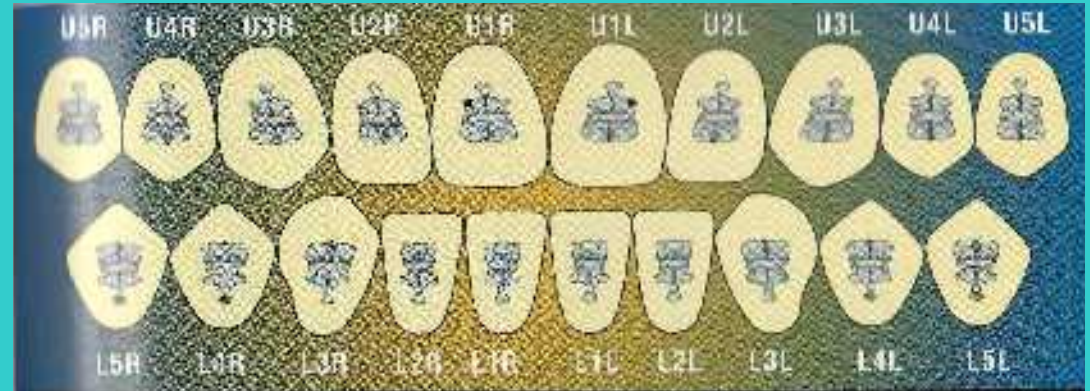
- Steps
- 1. Mechanical cleaning
(metal burs, rubbers)
- 2. isolation : lip retractor, cotton rolls, saliva retractor
- 3. Drying with bensisin or alcohol



- **3. etching:**
 - phosphoric acid
 - gel
 - 30 seconds
- **4. washing:**
 - 30 seconds with water
 - isolation again
 - drying again
- **5. Bonding (etch-bond)**
- **6. Placing of brackets**
- **7. remove of the overflow of bonding material**
- **8. polymerisation**

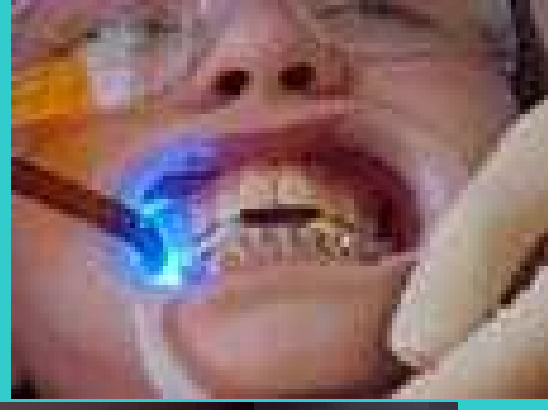


Positioning of the brackets



- In the middle of the crown
- -- vertically
- -- horizontally
- -- brackets positioners are used





Bonding materials

- **composites**
- **glasionomer cements**

- **two components,
mix**
 - **Paste-paste**
 - **Powder-liquid**
- **no-mix materials**

- **light curing komposite and
glasionomer bonding materials**
- **self curing „glue”**

Placing Orthodontic Bands

- Three major steps in banding:
 - separation of adjacent teeth
 - sizing and fitting the band to the tooth
 - cementation and cleanup



Placing Orthodontic Bands

- Three major steps in banding:
 - separation of adjacent teeth
 - **sizing and fitting** the band to the tooth
 - cementation and cleanup



Placing Orthodontic Bands

- Three major steps in banding:
 - separation of adjacent teeth
 - sizing and fitting the band to the tooth
 - **cementation** and cleanup



Separator Plier:



Direct bonding tubes



Ligatures



- Elastic
- Metal



- Single



- Continuous



Single ligatures

Elastic ligature (sologumi)

Metal ligature
(szöcske = grasshopper)



Single elastic ligature

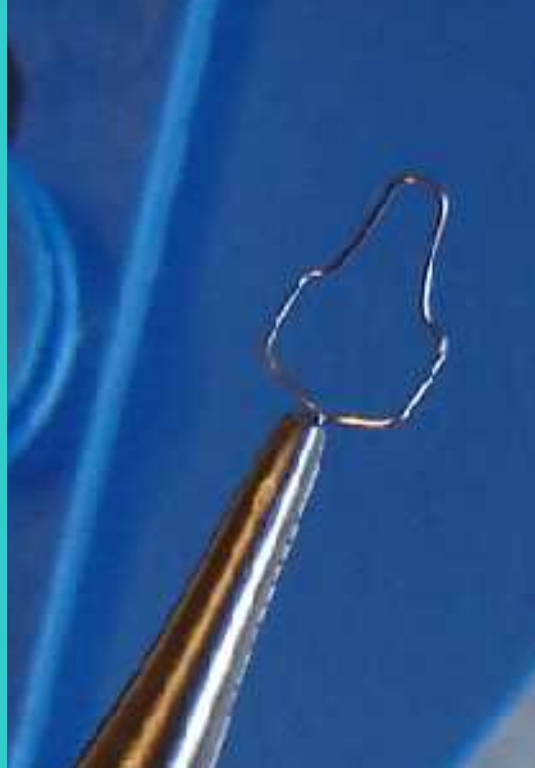


Needle holder

Single elastic ligature



Metal ligature



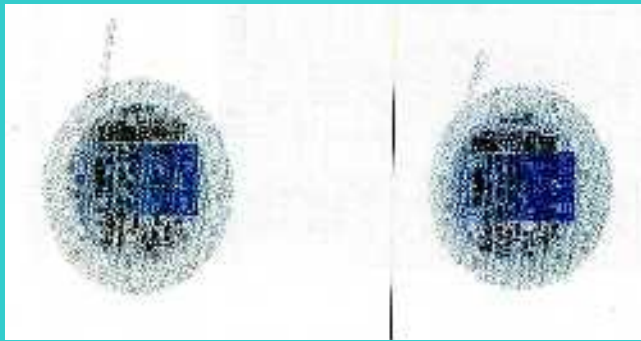
Metal ligatures



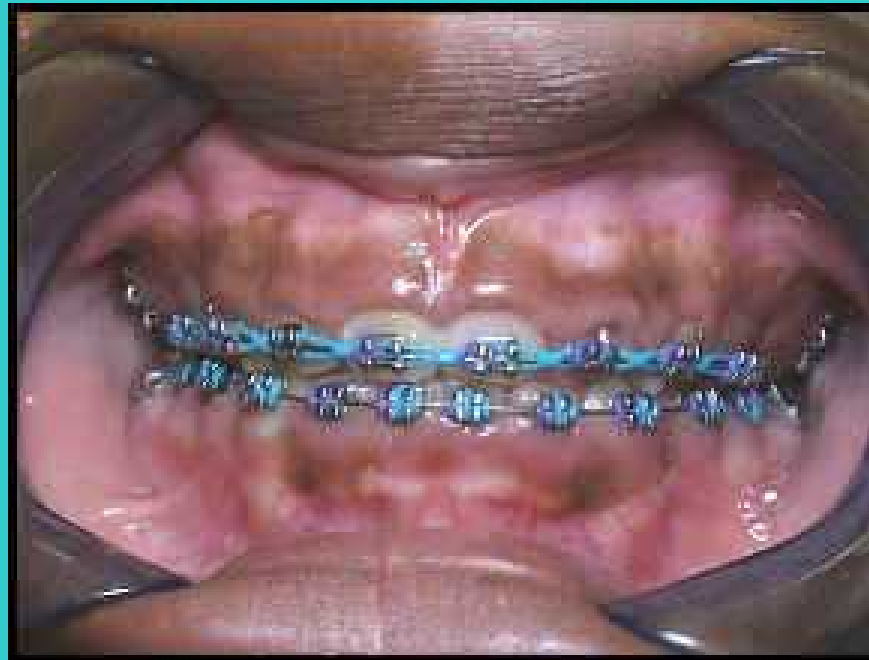
Self-ligating brackets



Continuous elastic ligature (to close gaps)



Continuous elastic ligature (to close diasthema)



Continuous elastic ligature (to close gaps)



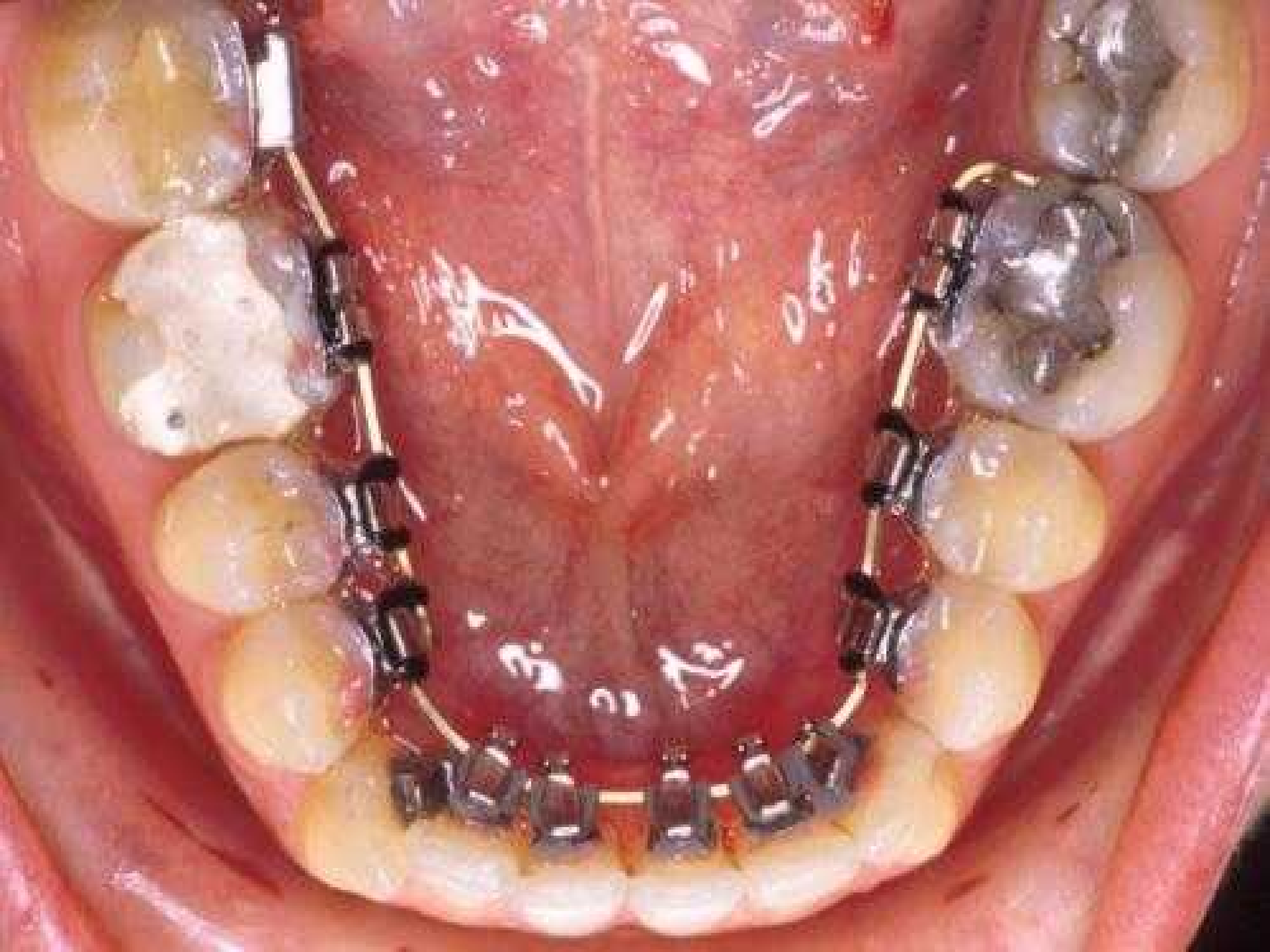
Elastic chain



Continuous metal ligature



Main function is fixing of the teeth





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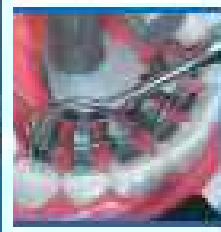
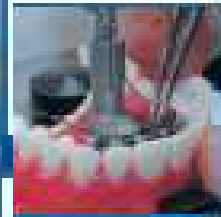
Das innovative Dentaurum Lingual System

Generationen voraus

Wortneueit: nickelfreie® Lingual-Brackets

Seit 1990/1991

DENTAURUM



Indirect bonding



Indirekt bonding



Removing Fixed Appliances

- Bands are lifted off the tooth with band removing pliers
- Metal brackets are easily removed by gently squeezing them with How pliers
- Ceramic brackets must be removed with great care to avoid enamel fracture.
- Residual cement and adhesive is removed with a scaler or metal finishing bur. or rubbers

Fixed expanders

Quad-helix

in mixed and permanent denture



Hyrax

rapid palatinal expansion
(ripping of midpalatal suture)



Hyrax

(rapid palatinal expansion- 3 weeks)



Fixed appliances for the treatment of II. class anomalies

- Herbst-appliance
- Jusper Jumper
- Forsus spring stb.



Orthodontic Implants Anchorage



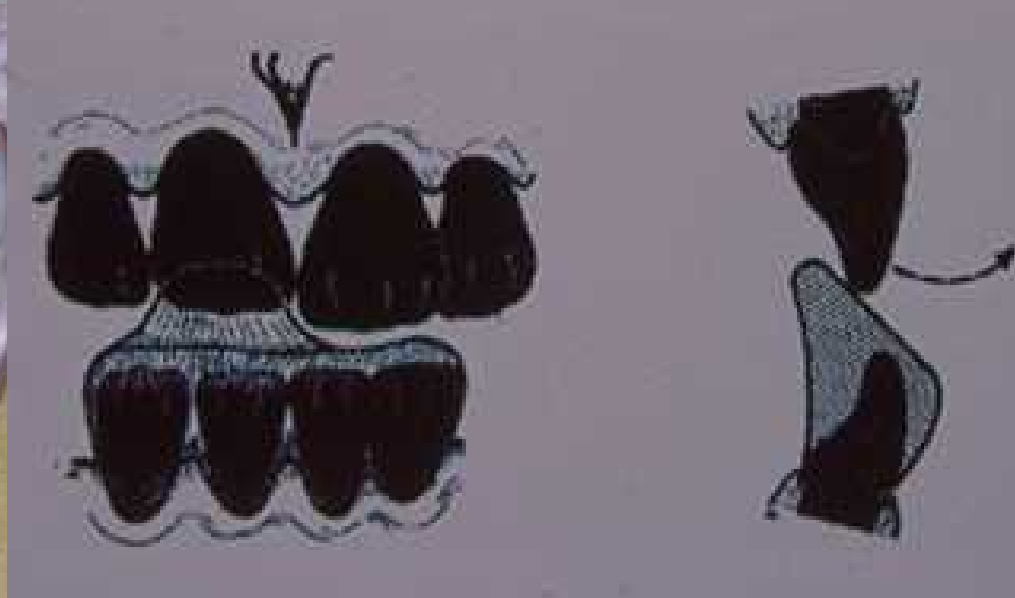
Orthodontic Implants Anchorage



Inclined plane against frontal crossbite



Keresztharapás



Weingart plier



Ligature Cutter



Distalend Cutter



Laboratory Wire Cutter

Weingart-Plier:

- universal plier: with it we set and take out the archwires to 6 from its place, activate MB appliances' accessorial appliances (QH, TP-arch...), remove brackets and activate removable appliances: labial arch, clasps, springs



springs



Needle-holder

Nikkel-titanium wire

1. Leveling phase

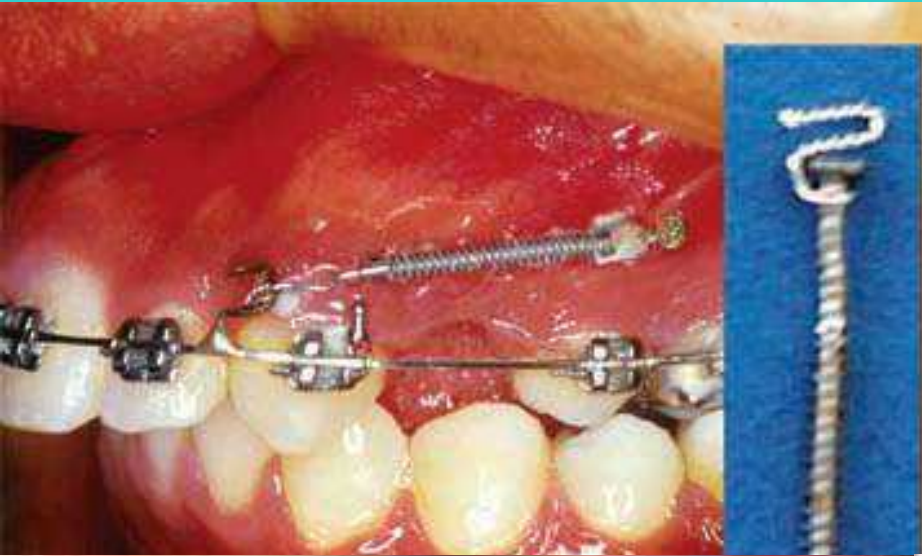


Twist-flex or coaxial wire

1. Leveling phase



2. Leading phase— the movement of lateral teeth



Wire: quadrangular stainless steel wire

Force : rubbers. Ligatures, loops



Leading phase— the movement of lateral teeth



Orthodontic implants

Anchorage



Orthodontic implants Anchorage



Transpalatinal arch

Anchorage



Nance-appliance Anchorage



Headgear

Anchorage



Lingual-arch



Lipbumper Anchorage



3. Contraction phase for setting of incisors

Wire: stainless steel

loop



Intermaxillary rubbers



Elastic chain

Utility wire

- Connection between molars and incisors
- For the treatment of deep bite, open bite protrusion, retrusion

Utility wire (inactive)



Activation by deep bite



Activation by open bite



Activation for retrusion (tilting backward)



Activation for sagittal expansion of the front (tilting forward)

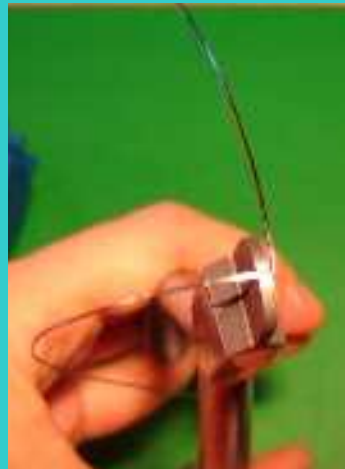


Steps of bending

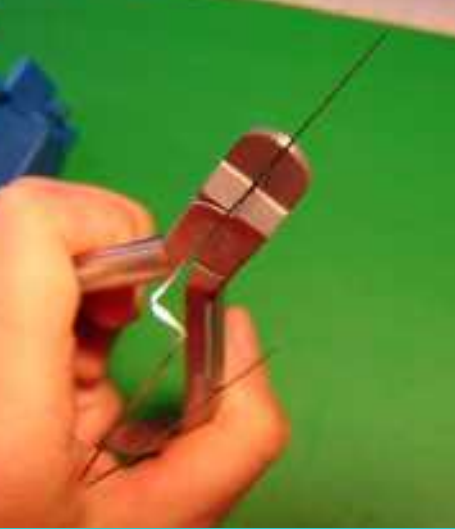


- De La Rosa-Plier:
 - for forming the archwires
 - for ideal-arch forming

Steps of bending



Pliers bending utility wire



Tweed - plier

Nance -plier (steps on the nose)





4. Correction phase

- perfecting of the occlusion
 - correction of teeth' axis
- treatment of remaining problems
(gaps, rotation, tilting stb.)

5. Retention

- *There is only one way to completely avoid relapse. At the end of treatment, remove the braces, polish the teeth, make study models and take photographs. And then take the patient out the back door of the office and shoot him. (Dr. Tom Graber DMD, South African Dental Congress. August 1992.)*

Length of retention

- Fixed appliance: 1-3 (4-5) years
- A retention should be twice longer than the active treatment

1 year > 2 years

Fixed retainers



Ready-made retainer



Thin stainless steel wire



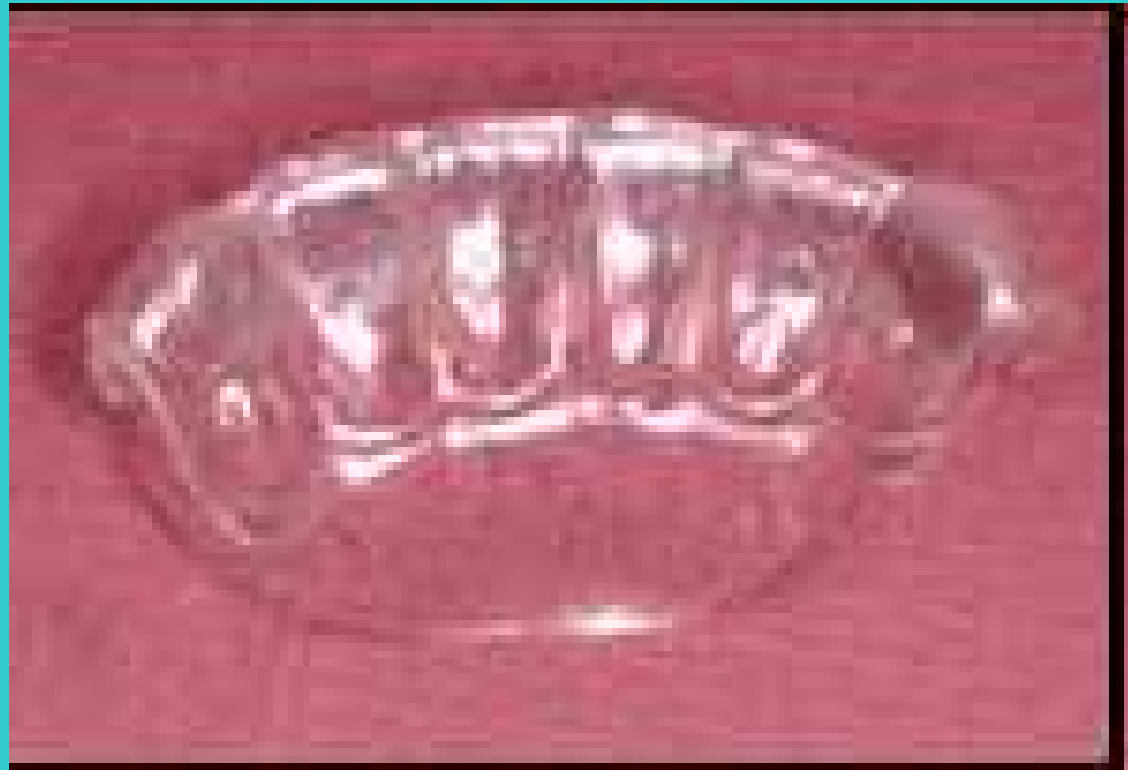
Twist-flex wire



Retainers Resins



Retainers— Essix retainer



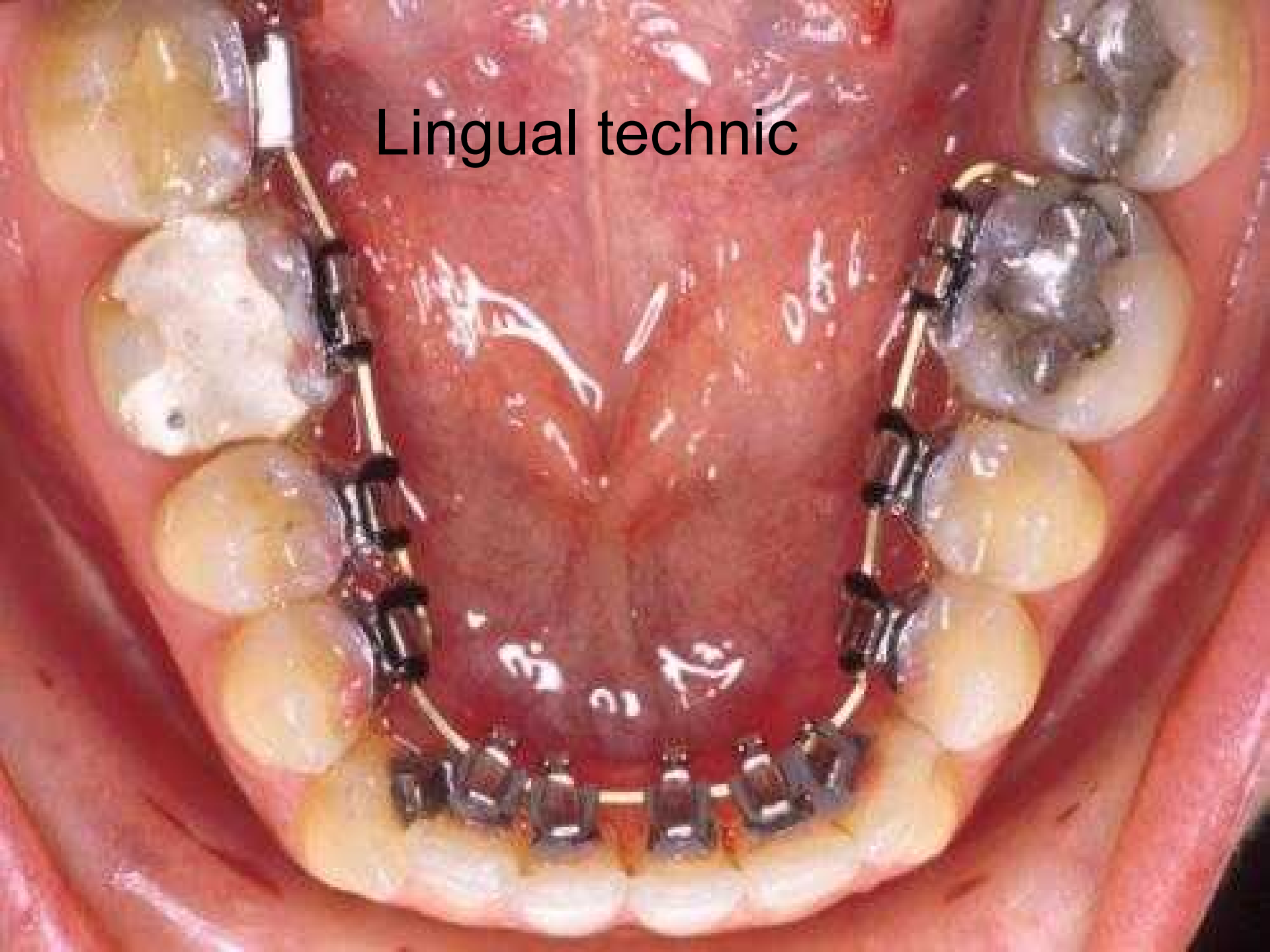
Retainers- Positioner



Retainers - Barrer-retainer



Lingual technic



4 premolars extraction



T
B
O

4 premolars extraction



UPPER ARCH



LOWER ARCH

4 premolars extraction



POST-TREATMENT

Purpose: I. class occlusion

2 premolars extraction

Canines always have to be in normal occlusion !!

Purpose : canines I. class,
molars II. class



Extraction of 1 lower incisor



In lower crowding



Removing of wisdom teeth



To avoid relapse and late crowding

Thank you for your attention !

