

# Orthodontics

Anomalies

# Anomalies

## of

Teeth

Groups of teeth

Jaws

Intermaxillary relations

# Anomalies of tooth number

- Hypodontics (hypodontia) – the tooth (or teeth) are missing

*Third molars (if third molars are missing – it is not hypodontia), second premolars, upper lateral incisors*

- Hyperodontics (hyperodontia) supernumerary teeth
- Anodontics (anodontia)

# Anomalies of tooth size (dimension)

- Microdontics (microdontia) – small teeth, spaces between teeth
- Macrodontics (macrodontia) – big teeth, crowding

# Anomalies of form of teeth

Dentes confusi - germs of teeth are fused

Dentes concreti - germs of teeth are grown together at the stage of development of roots (roots are confused)

Dentes geminati – germ of tooth is grown together with a germ of supernumerary tooth

Cone teeth

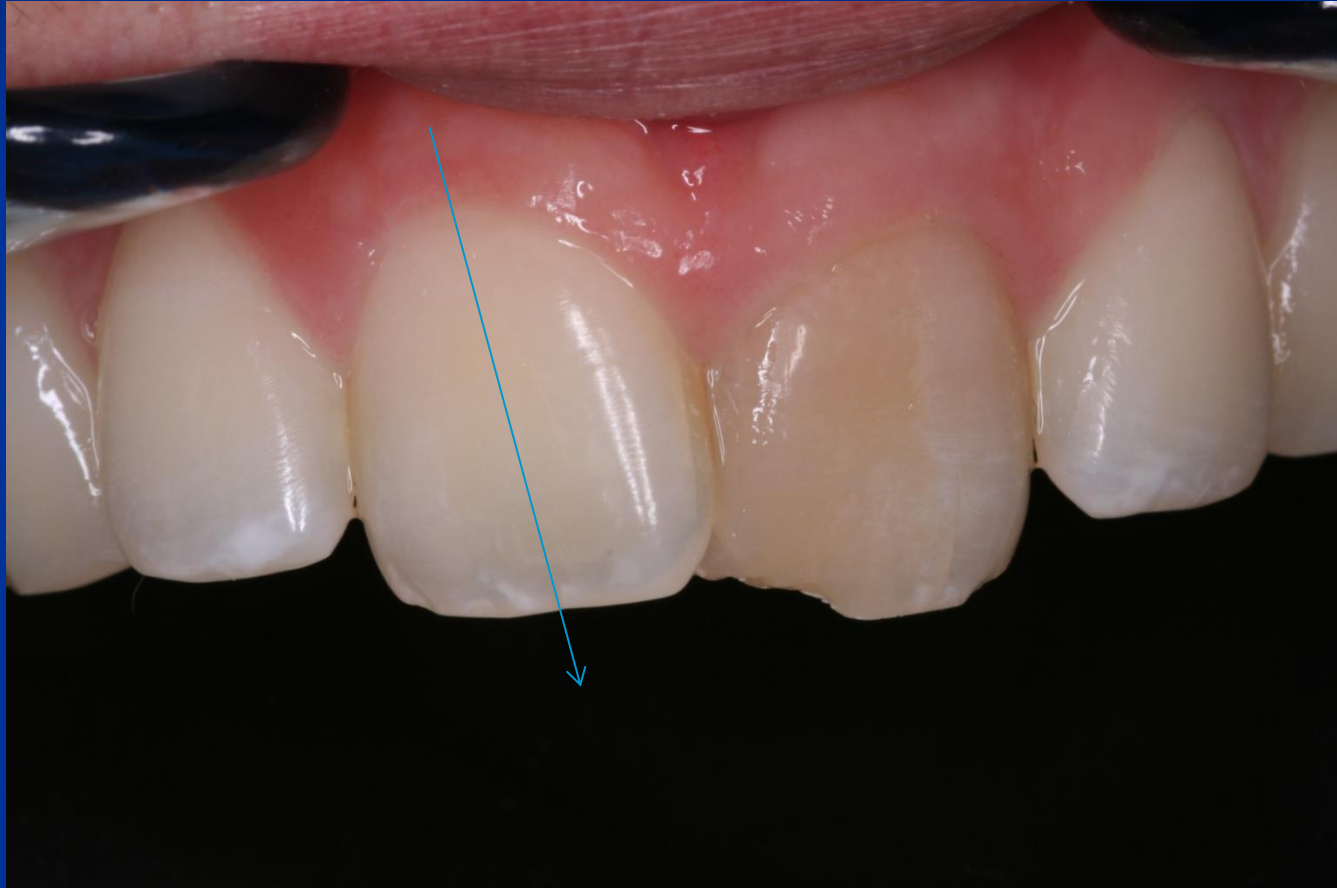
# Anomalies of tooth position

- Inclination
- Rotation
- Transposition
- Infraocclusion
- Supraocclusion
- Vestibular, oral eruption
- Diastema

# Inclination

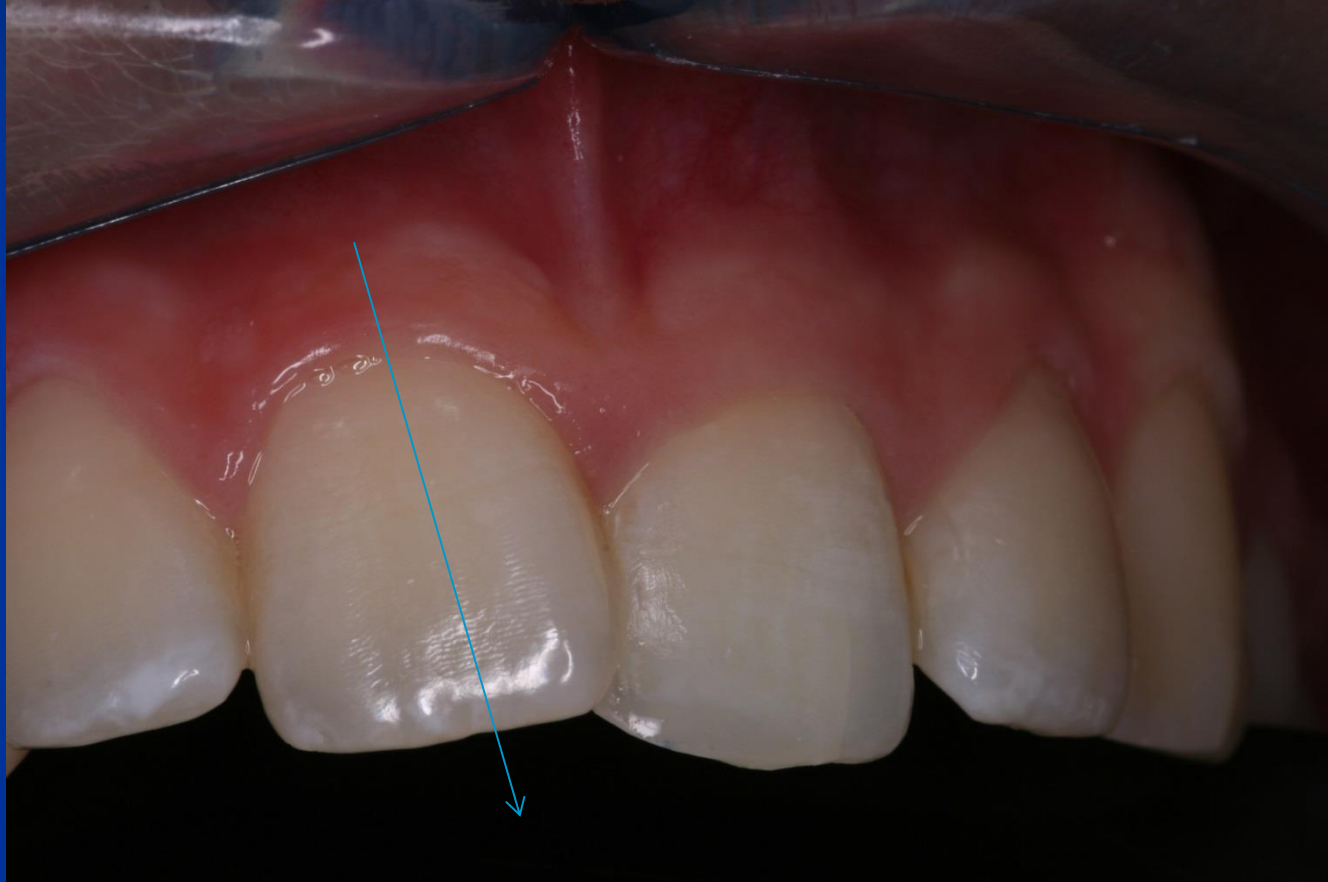
- Mesioinclination: the long axis is inclined mesially
- Distoinclination: the long axis is inclined distally

# Inclination





# Inclination



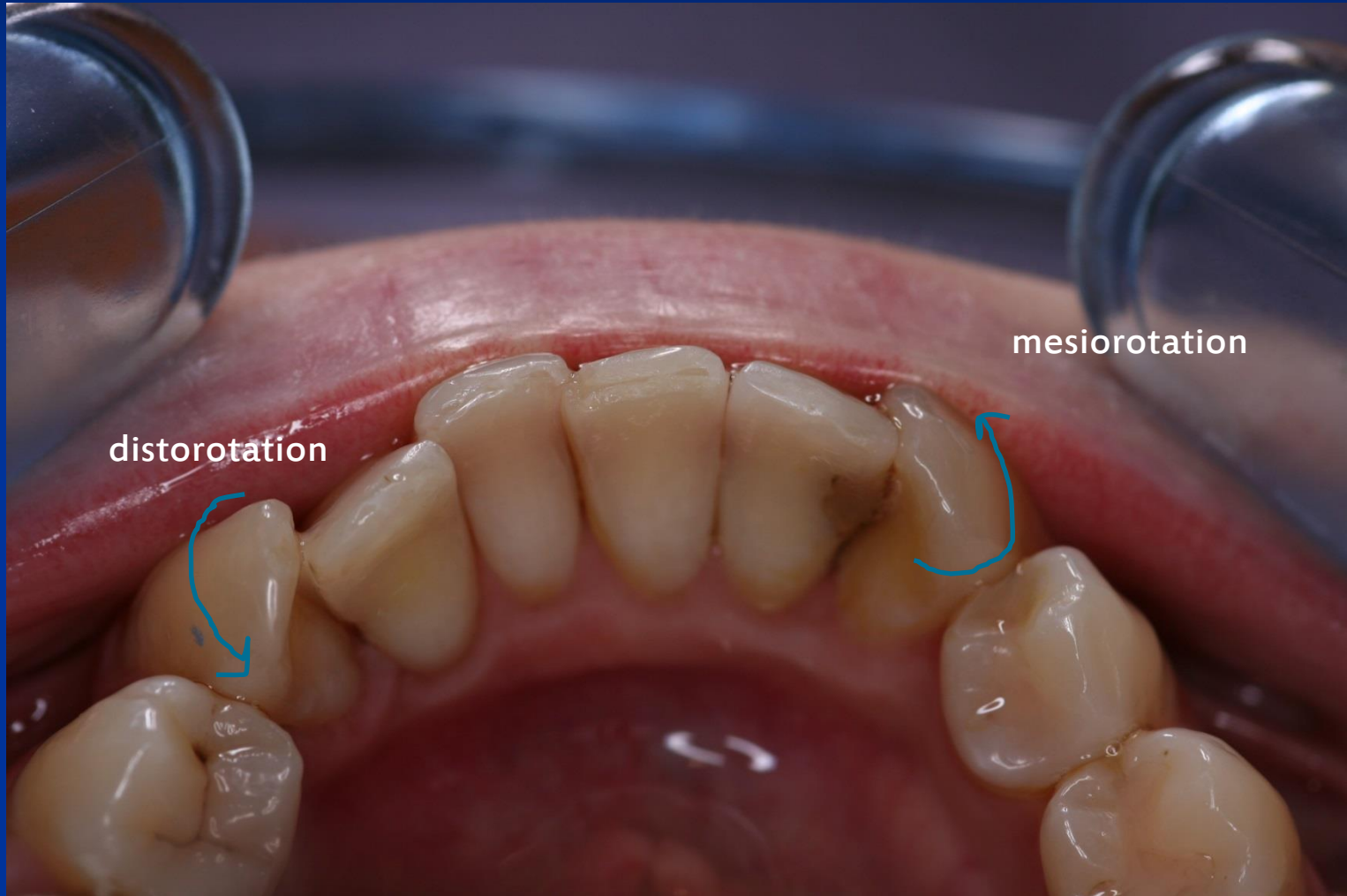
# Rotation

- The tooth is rotated around the long axis:

Mesiorotation – the vestibular surface is rotated mesially

Distorotation – the vestibular surface is rotated distally

# Rotation



# Rotation



# Vestibular eruption



# Supraocclusion



# Hypodontia, trema, cone tooth



# Protrusion

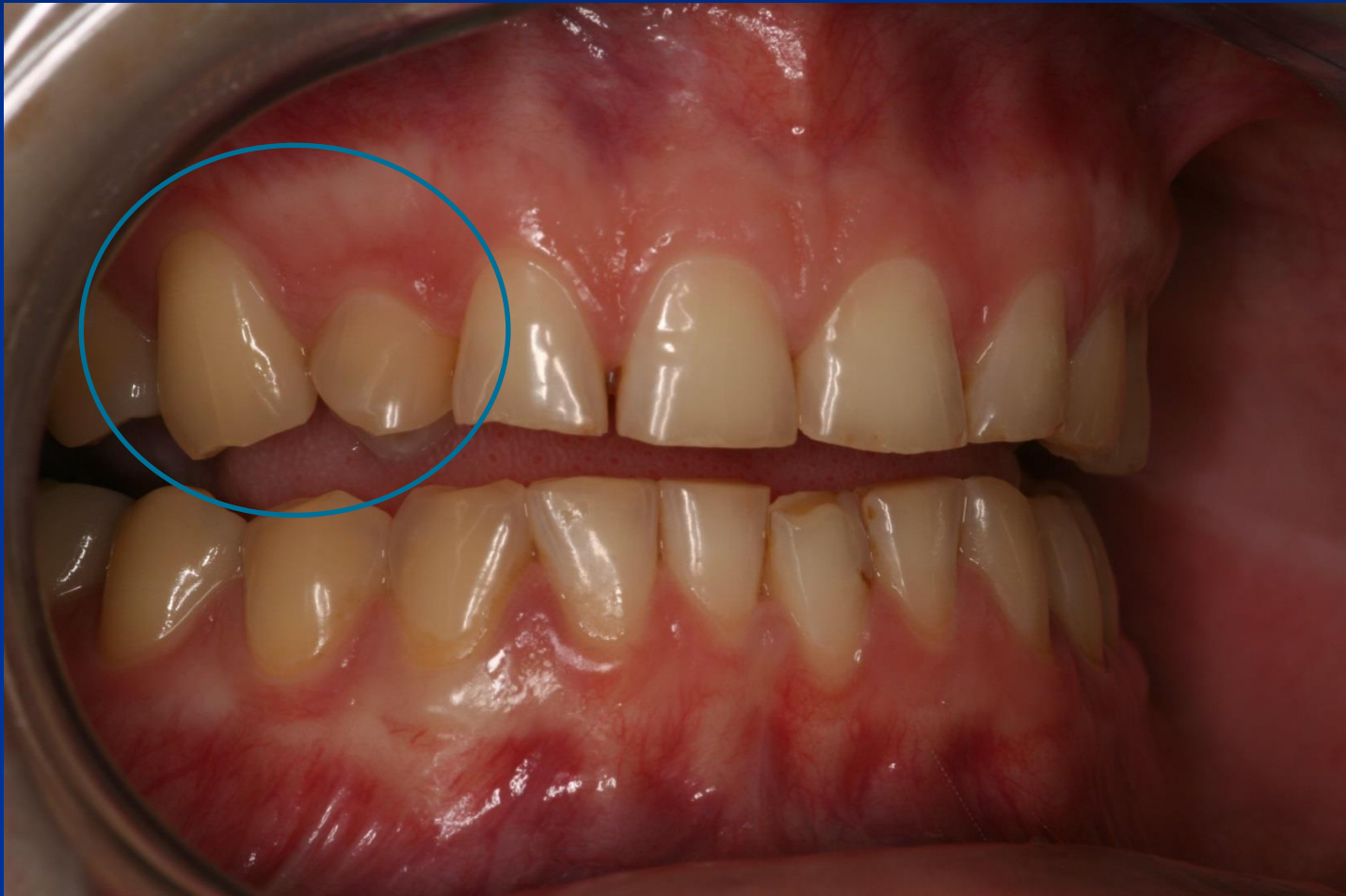




# Tremata



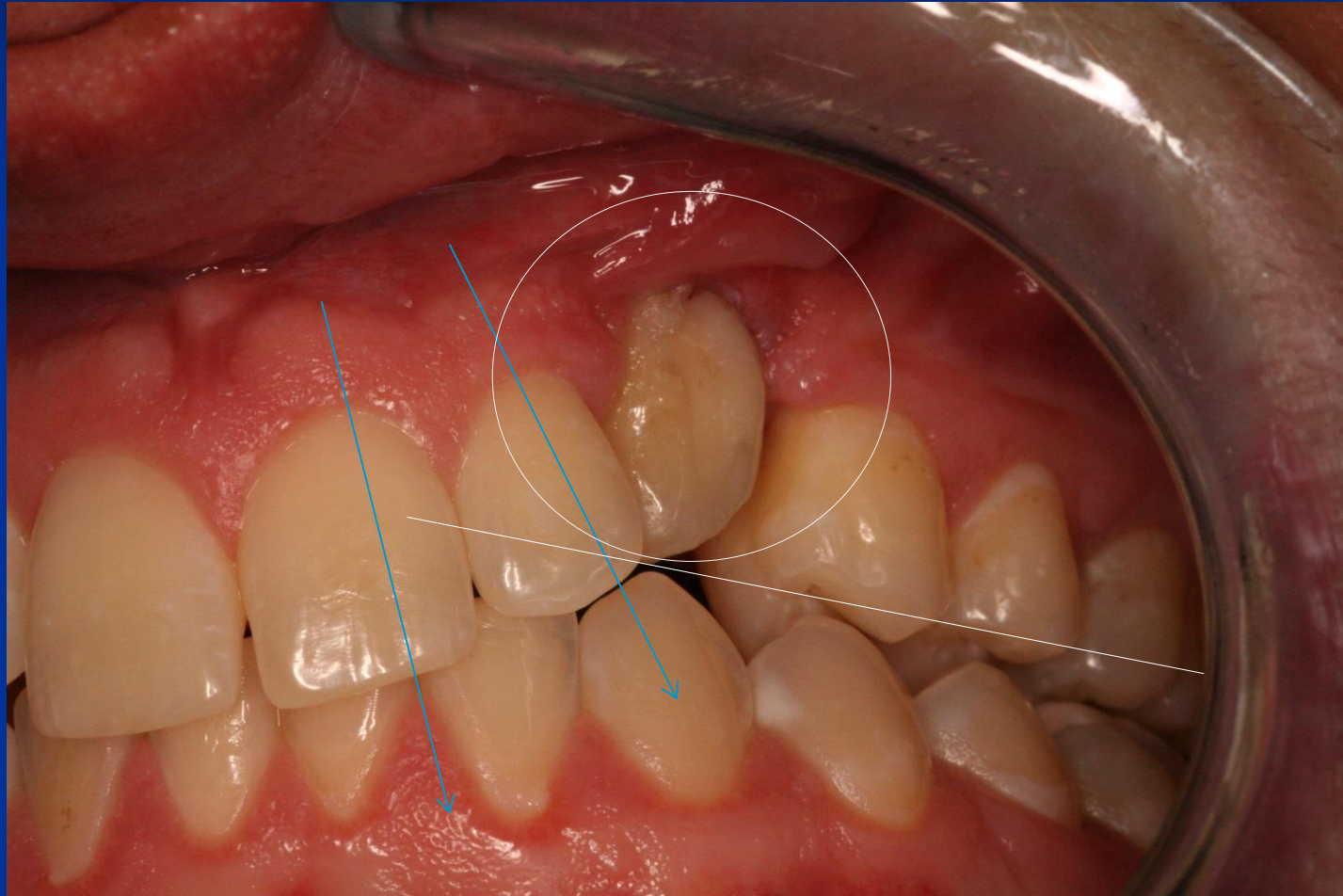
# Transposition 13,14



# Anodontia 22, persistency 62



# Disto-inclination 21, 22, infraocclusion 23



# Anomalies of group of teeth

- Compression
- Nonocclusion
- Deep bite
- Open bite
- Retrusion
- Protrusion
- Inverse bite
- Prognatism - overlap

# Key of occlusion acc. to Angle

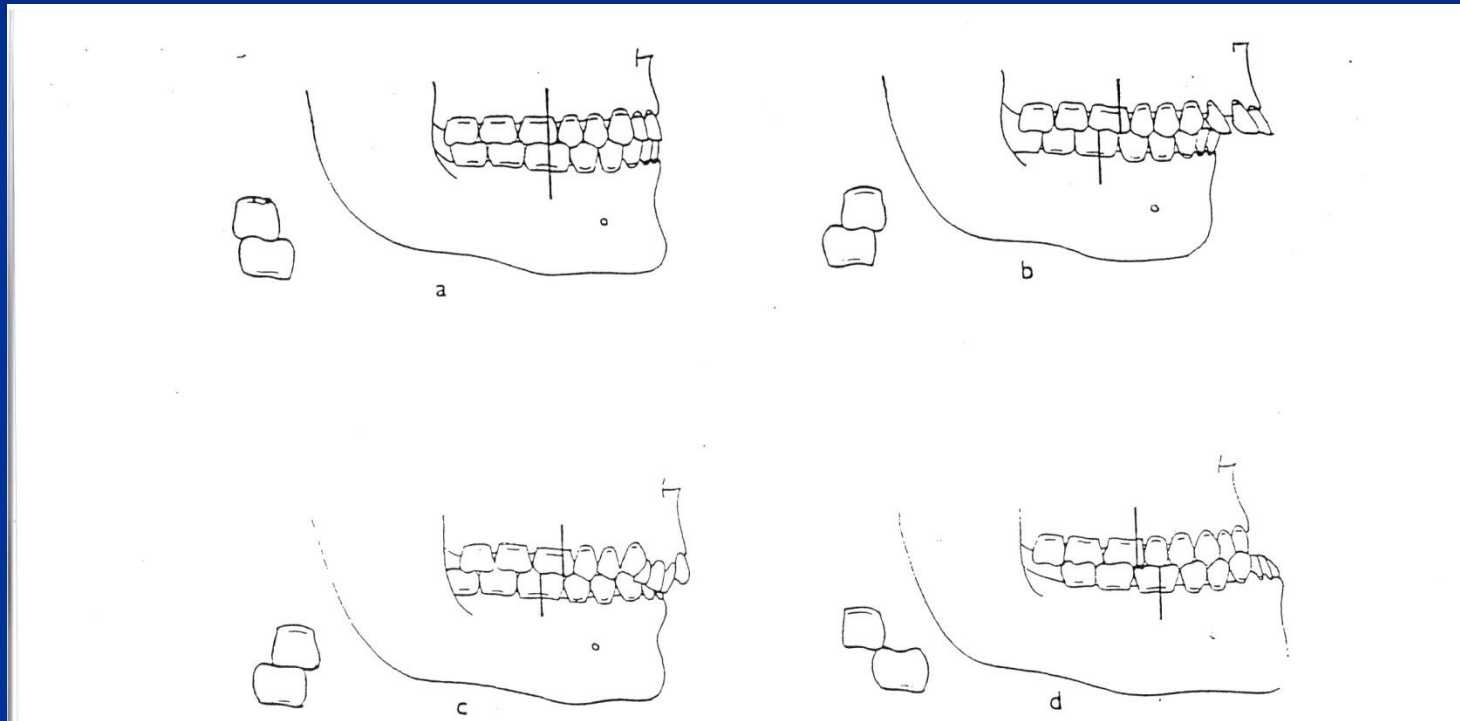
- Normoocclusion:

Mesiobuccal cusp of the first maxillary molar goes between mesial cusps of the first mandibular molar.

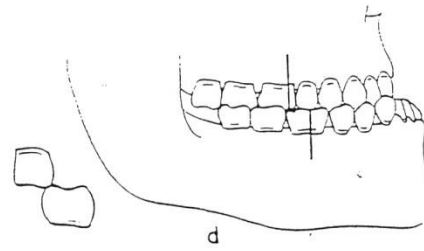
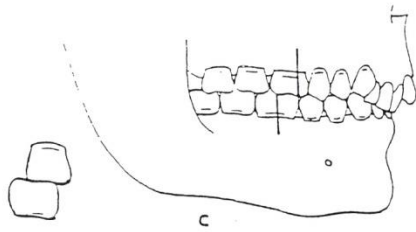
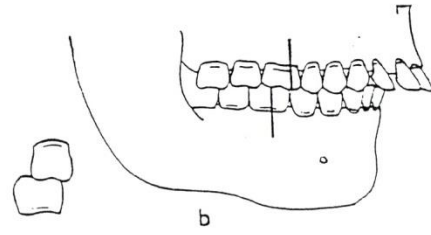
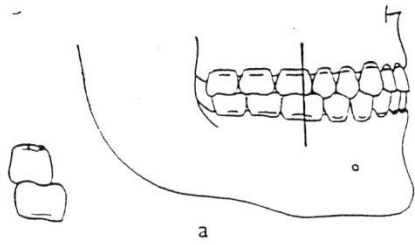
# Key of occlusion acc. to Angle

- Normoocclusion (normoocclusia)
- Distoocclusion – mandible is in posterior position (distoocclusia)
- Mesioocclusion – mandible is in anterior position (mesioocclusia)

# Classification acc. to Angle







# Angle

## Class I

The mesiobuccal cusp of the maxillary first molar lies in the mesiobuccal groove of the mandibular first molar, but the other teeth may have other anomalies such as spacing, crowding, open bite etc.



# Angle

- **Class II**
- Is also called distocclusion, or mandibular retrognathism
- The mesiobuccal cusp of the upper molar is situated anterior to the mesiobuccal groove
- Two subdivisions exist:
- Division 1 (II/1) --> Anterior teeth protrude, increased overjet
- Class II/1



Class II/1



Class II/2

- Class III
- Is also called Mandibular Prognathism
- The mesiobuccal cusp of the upper molar lies posteriorly to the mesiobuccal groove of the first mandibular molar



Class III

**Mandibular prognatism, inverted  
bite, infraocclusion, crowding,  
open bite**



# Deep bite



# Overjet

- Is the distance between the tip of the upper and the tip of the lower incisors in the horizontal plane
- The normal distance is ~ 1.5-2.5 mm
- We distinguish two types of overjet:
- Positive overjet --> Distance  $>2.5$  mm
- Negative overjet (anterior cross bite) --> Distance  $<1.5$  mm

# Overbite

- Normally the upper centrals should cover between  $1/3$  -  $1/4$  of the anterior surface of the lower centrals
- Any disturbance in this coverage can result in:
  - Open Bite
  - Deep Bite



# Scissor Bite

- Is a rather rare orthodontic malocclusion, where the palatal surface of the upper molars rest laterally from the buccal surface of the mandibular molars



# Midline Deviation

- Occurs when the midline of the upper jaw doesn't coincide with that of the lower jaw



# Posterior Cross Bite

- In this malocclusion the buccal cusps of the upper molars lie in the opposing central fossa of the mandibular molars (in physiological conditions the **palatal cusps** of the upper molars lie in the opposing central fossa)



# Mesioocclusion, posterior cross bite



- Crowding

Is the result of lack of space in the dental arch

- Spacing

**Is the result of excess of space in the dental arch**

- Wide interdental spaces

Diastema

Space between the two central incisors

- Rotation

- The tooth is rotated in the longitudinal axis

# Diastema



# Reasons

- Genetic factors
- Loss of primary teeth
- Persistency of primary teeth
- Insufficient function of masticatory apparatus
- Mouth breathing
- Parafunctions (sucking of thumb, dummy, put the lip between teeth etc.)

# Prevention

- Natural food admission (nursing, later chewing)
- Care for primary dentition
- Avoid parafunction



# Therapy

## Orthodontic appliances

- Passive (functional – always removable)

Enable the change of position of jaws and teeth through the function.

- Active

Affect active forces on teeth (removable, fixed)

- Removable – desk appliances (active components- e.g. screws)
- Fixed (brackets, wire)



wire

bracket

ring



elastic pull