

# Orthodontics

Preclinical dentistry II.

L. Roubalíková



# Anomalies of

Teeth

Groups of teeth

Jaws

Intermaxillary relation

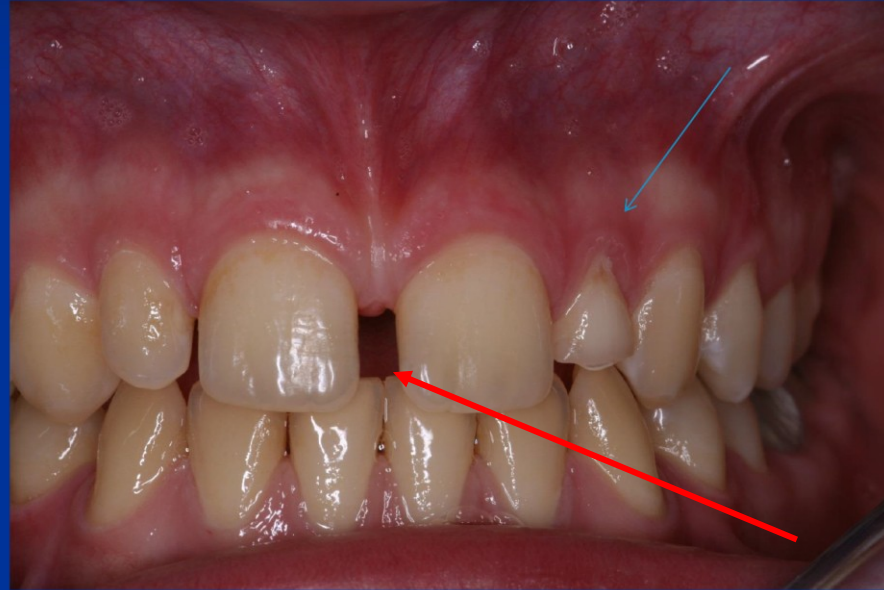


# Anomalies of tooth number

- Hypodontics (hypodontia) – the tooth (or teeth are missing)
- Third molars (if third molars are missing –it is not hypodontia), second premolars, upper lateral incisor
- Hyperodontics (hyperodontia) supernumerary teeth
- Anodontics (anodontia)



# Anodontia 22, persistency 62



Diastema



Anomalies  
of tooth  
size  
(dimension  
)

Microdontics (microdontia)  
– small teeth, spaces  
between teeth

Macrodontics  
(macrodontia) – big teeth,  
crowding



# Anodontia od 12, cone tooth 22



# Anomalies of tooth position

---

Inclination

---

Rotation

---

Transposition

---

Infraocclusion

---

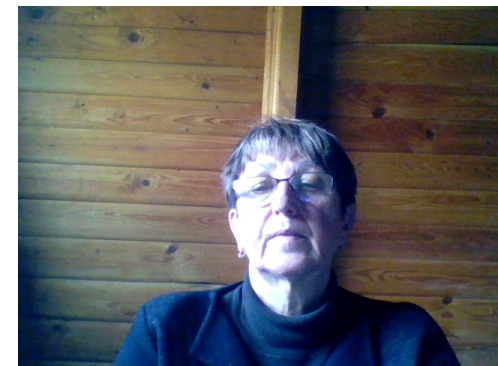
Supraocclusion

---

Vestibular, oral eruption

---

Diastema



# Inclination

---

Mesioinclination: the long axis is inclined mesially

---

Distoinclination: the long axis is inclined distally

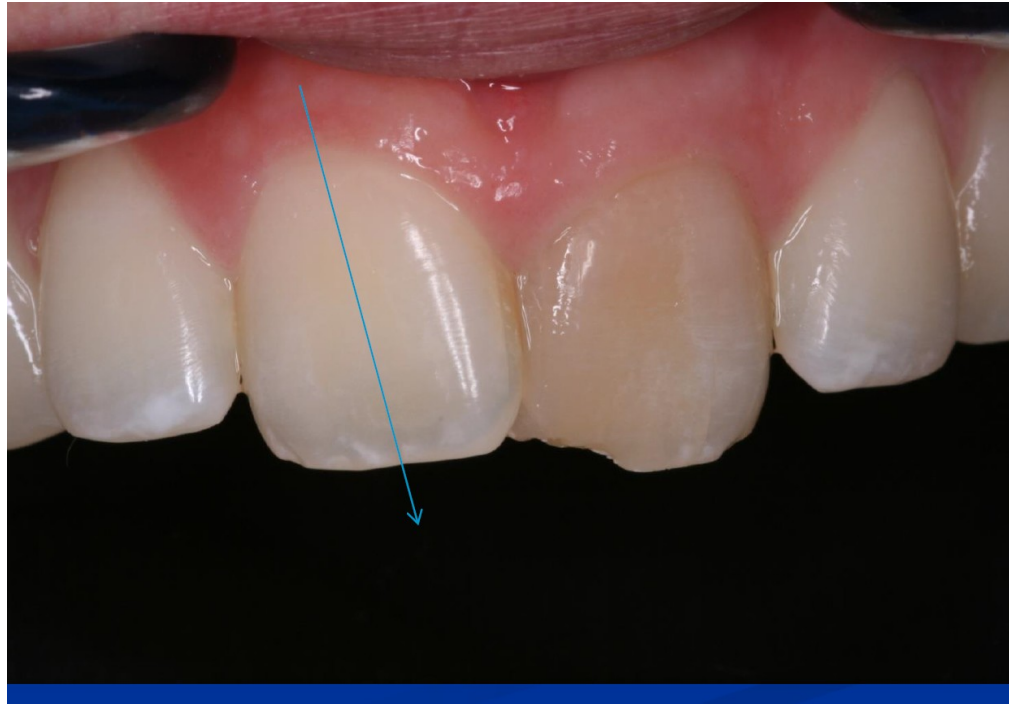




# Inclination



# Inclination



# Rotation

---

The tooth is rotated around the long axis:

---

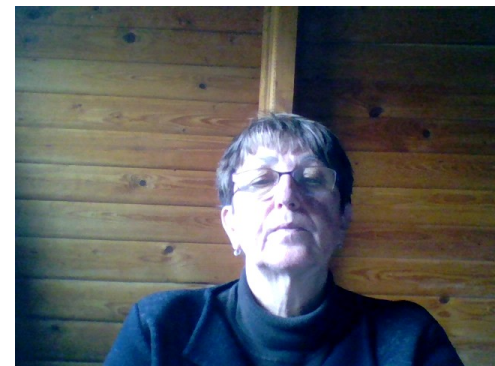
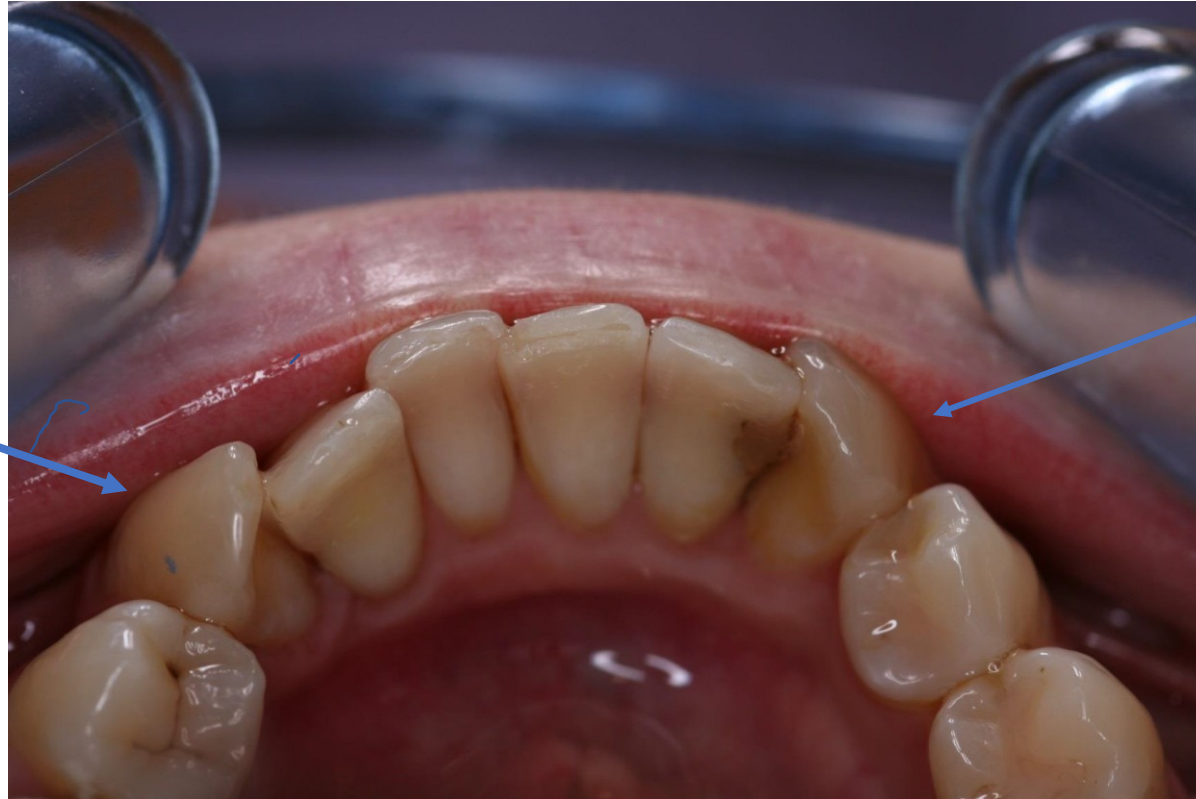
-Mesiorotation – the vestibular surface is rotated mesially

---

- Distorotation – the vestibular surface is rotated distally



# Rotation



# Rotation

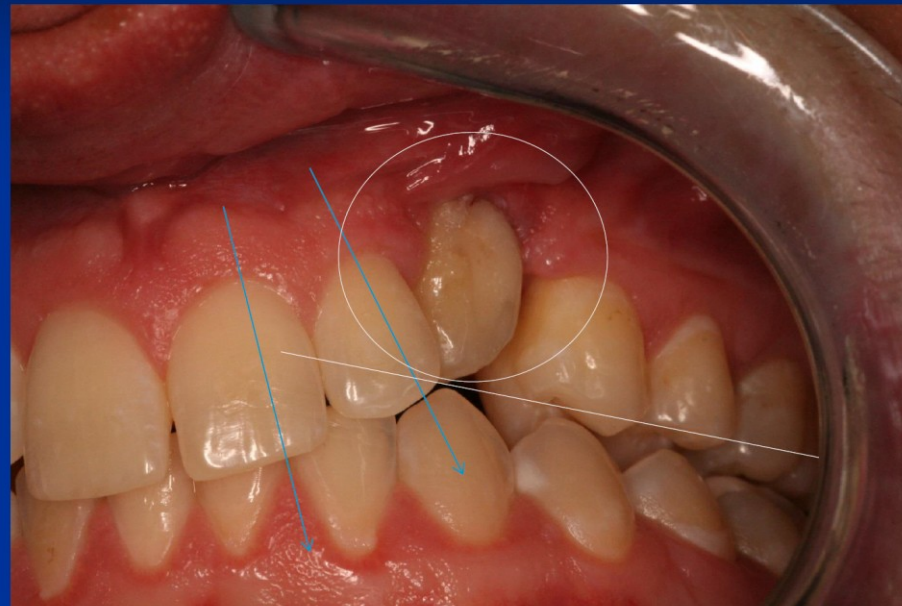


# Supraocclusion

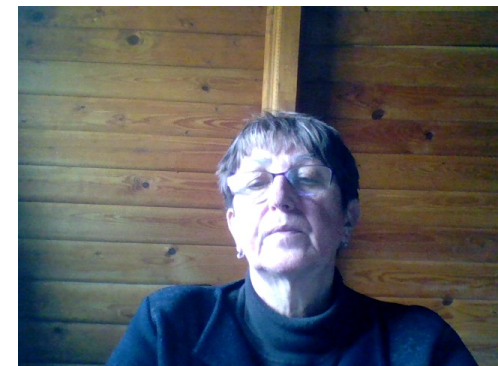


# Infraocclusion

**Distoinclination 21, 22,  
infraocclusion 23**



# Vestibular eruption





# Diastema

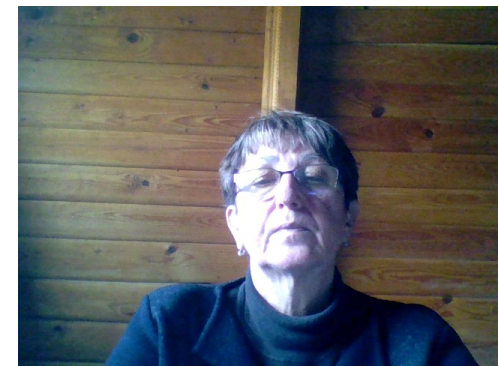
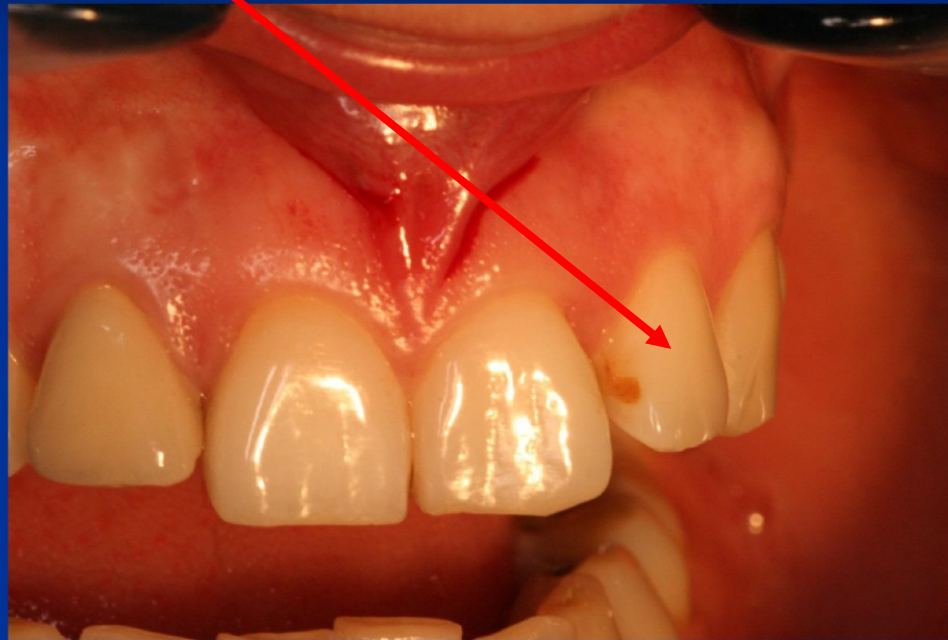




# Protrusion

The tooth is  
declinated  
vestibulary

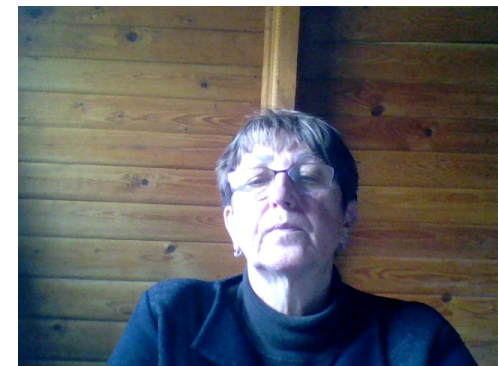
Protrusion



# Retrusion

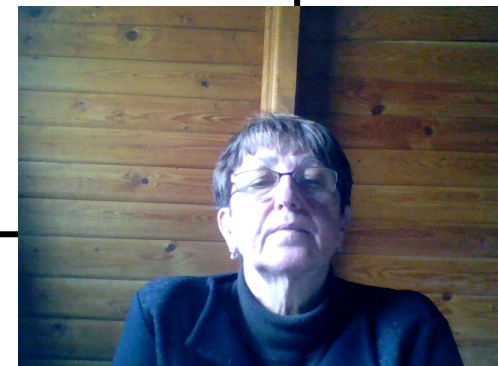


The tooth is  
declinated orally



# Transposition

- The position of teeth is exchanged



- Crowding

Is the result of lack of space in the dental arch

- Spacing

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

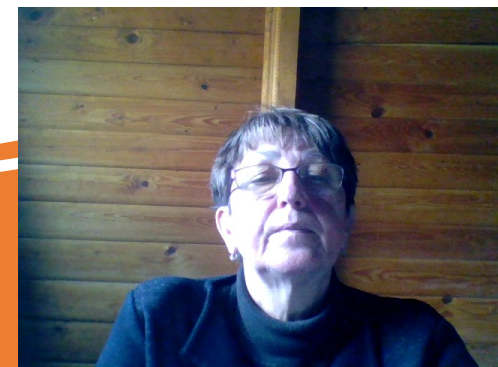
- Wide interdental spaces

Diastema

Space between the two central incisors

- Rotation

- The tooth is rotated in the longitudinal axis



Spacing – trema,

diastema



# Crowding





# Intermaxillary relationships

- Key of occlusion acc to Angle – position of first molars – maxillary and mandibulary



# Key of occlusion acc. to Angle

Normoocclusion  
(normoocclusia)

Distoocclusion – mandible is in posterior position (distoocclusia)

Mesioocclusion – mandible is in anterior position (mesioocclusia)



# 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 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

The mesiobuccal cusp of the upper molar is situated anterior to the mesiobuccal groove

Two subdivisions exist: n Division 1 (II/1) --> Anterior teeth protrude, increased overjet

Division 2 (II/2) --> Central incisors retrude, lateral incisors protrude



# Angle class II.



Class II/1

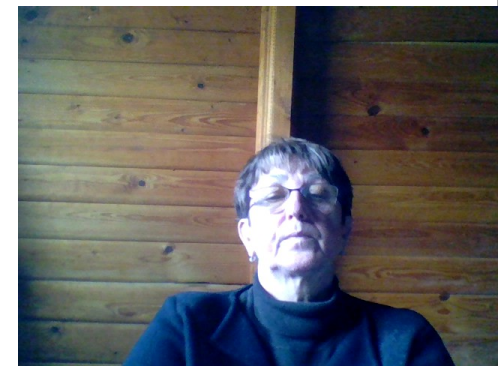


Class II/2



# Angle class III.

- The mandible is in anterior position



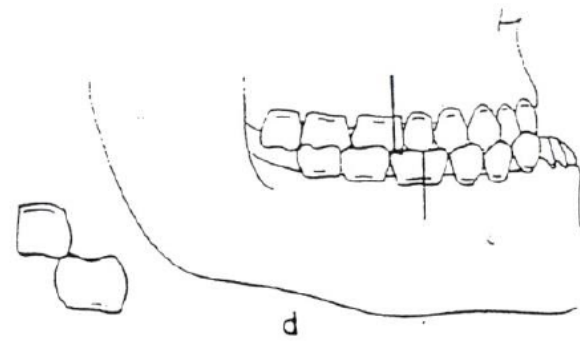
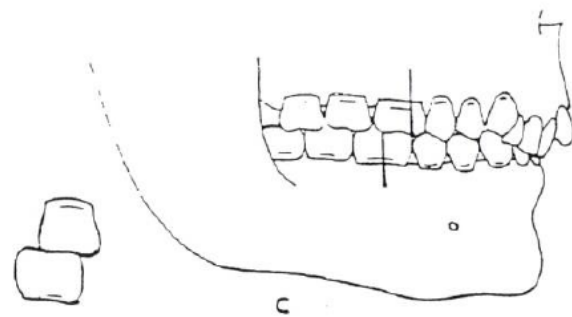
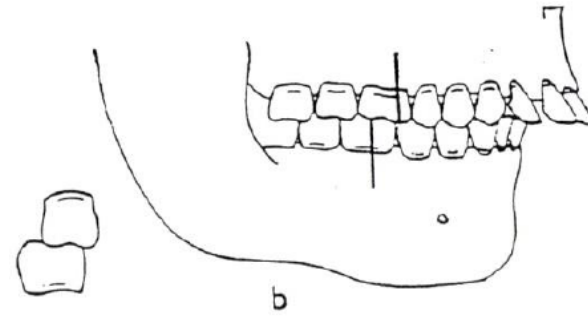
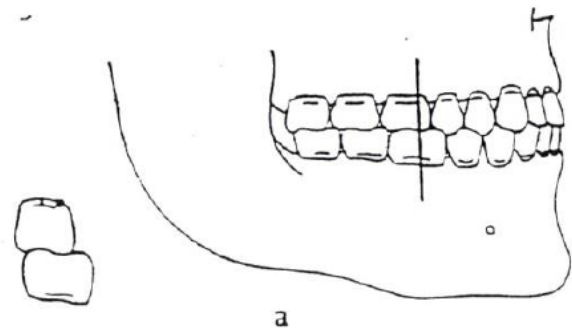
- Class III
- Is also called Mandibular Prognathism
- The mesiobuccal cusp of the upper molar lies posteriorly to the mesiobuccal groove of the first mandibular molar



Class III







# 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  $\sim 1.5-2.5$  mm
- We distinguish two types of overjet:
- Positive overjet  $\rightarrow$  Distance  $>2.5$  mm
- Negative overjet (anterior cross bite)  $\rightarrow$  Distance  $<1.5$  mm



# Positive overjet



# Negative overjet

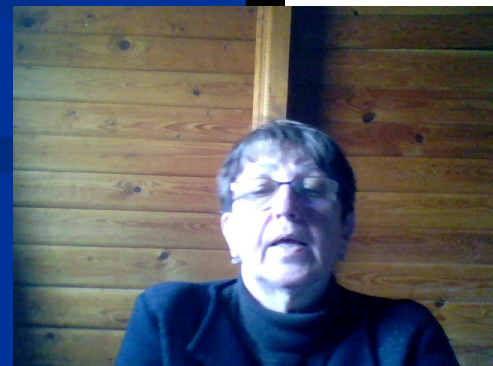


# Anterior cross bite



# 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



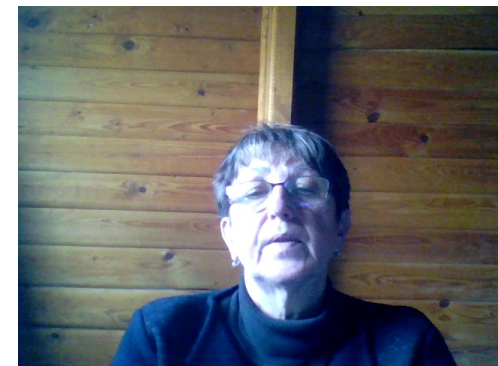
# Deep bite



# Open bite



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



# Scissor Bite

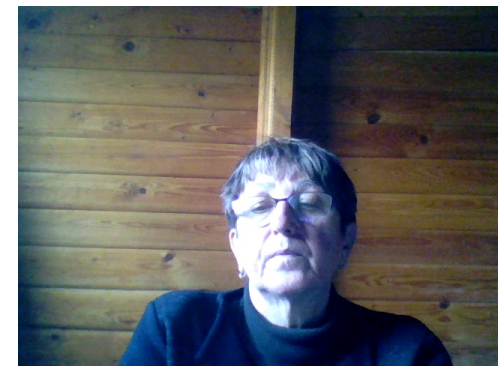
- Is a rather rare orthodontic malocclusion, where the palatal surface of the upper molars rest laterally from the buccal surface of the mandibular molars



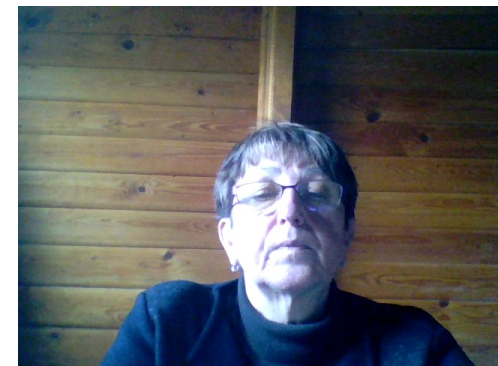


# Posterior Cross Bite

- 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)

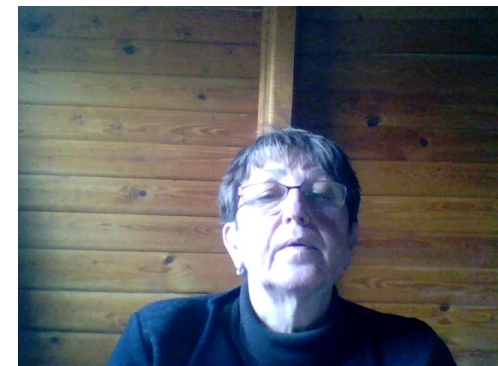


# Mesioocclusion, posterior cross bite



# Midline Deviation

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



# Prevention of orthodontic anomalies

## Reasons

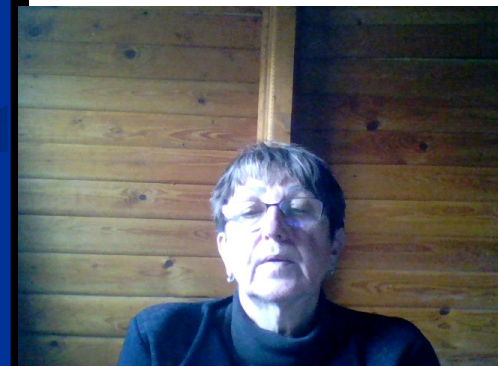
- Genetic factors
- Loss of primary teeth
- Persistency of primary teeth
- Insufficient function of masticatory apparatus
- Mouth breathing
- Parafunctions (sucking of thumb, dummy, put the lip between teeth etc.)



# Prevention of orthodontic anomalies

## 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)

