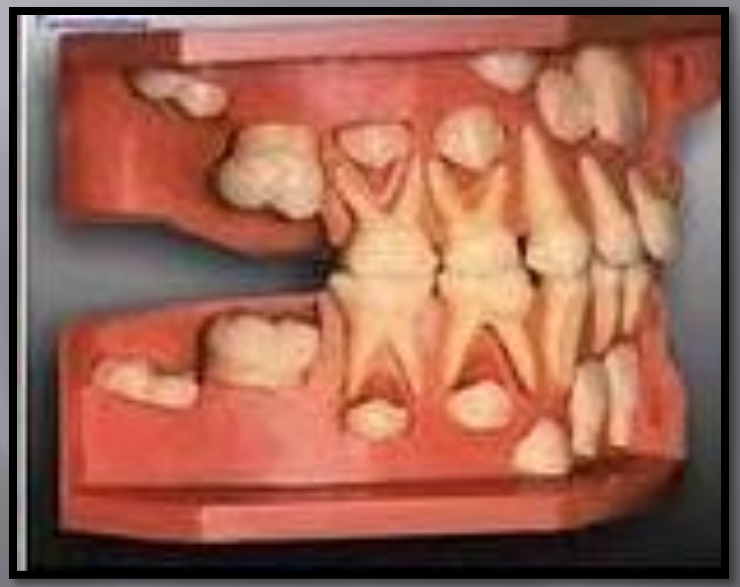
The Mixed Dentition and The Changes in Occlusion



Dr. Ayshan KOLEMEN

The occlusion of the deciduous dentition

- Incisors are located in a more vertical position in alveolar bone
- There are usually diastemas between the incisors
- More overbite
- There are primate space (Monkey space)
- The distal surfaces of the maxillary and mandibular molars in deciduous teeth closes in flush terminal plane

- Mixed dentition: milk and permanent teeth is when they appeared together in the mouth

- Early mixed dentition
- Late mixed dentition

Early mixed dentition

- Dental age 6: mandibular and maxillar permanent first molar, mandibular central incisors
- Dental age 7 : maxillar central and mandibular lateral incisors
- Dental age 8: maxillar lateral incisors

Late mixed dentition

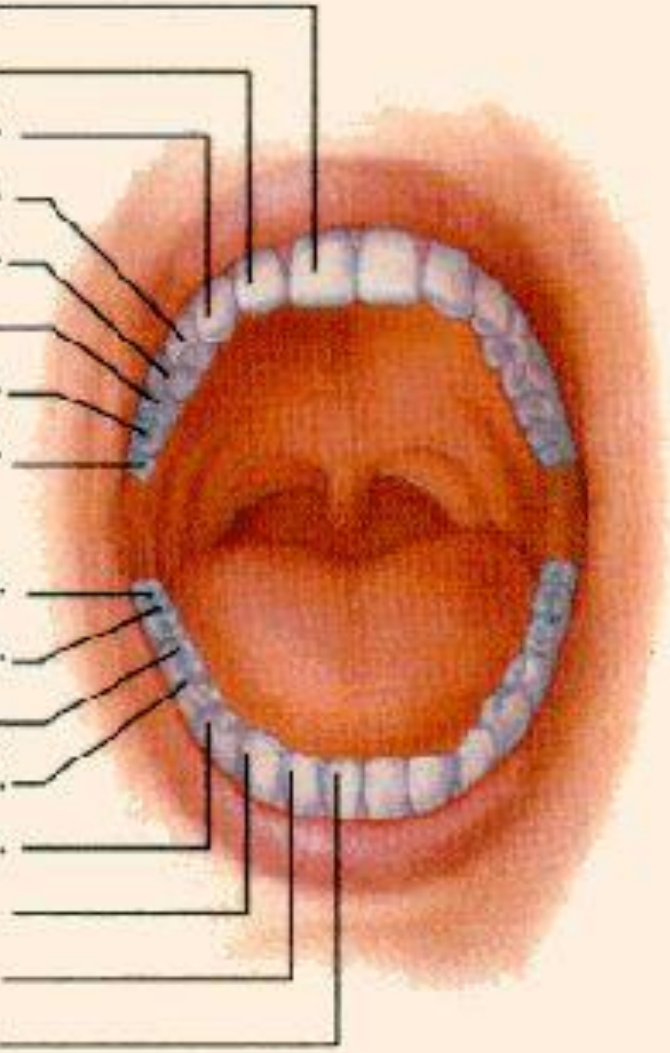
- Dental age 11: mandibular canine, mandibular and maxillar first premolar
- Dental age 12: mandibular and maxillar second premolar and maxillar canine

Early permanent dentition

- Dental age 12- 14: mandibular and maxillar second molar
- Mandibular and maxillar third molar?

Sequence of Eruption

	Primary Erupt	Permanent Erupt
Upper Teeth		
Central incisor	8-12 mos.	7-8 yrs.
Lateral incisor	9-13 mos.	8-9 yrs.
Canine (cuspid)	16-22 mos.	11-12 yrs.
First premolar		10-11 yrs.
Second premolar		10-12 yrs.
First molar	13-19 mos.	6-7 yrs.
Second molar	25-33 mos.	12-13 yrs.
Third molar		17-21 yrs.
Lower Teeth		
Third molar		17-21 yrs.
Second molar	23-31 mos.	11-13 yrs.
First molar	14-18 mos.	6-7 yrs.
Second premolar		11-12 yrs.
First premolar		10-12 yrs.
Canine (cuspid)	17-23 mos.	9-10 yrs.
Lateral incisor	10-16 mos.	7-8 yrs.
Central incisor	6-10 mos.	6-7 yrs.



The changes in the structure of the dental arch

- Place preparation in the anterior region
- The establishment of posterior occlusion

Place preparation in the anterior region

- Using physiological diastema of deciduous dentition.
- Using primate space
- Increase in the intercanine arch width
- Increase in the intercanine arch length

place preparation in the anterior region

- Using physiological diastema of deciduous dentition.
- Maxilla ≈4mm (0-10mm), mandibular ≈3mm (0-6mm)

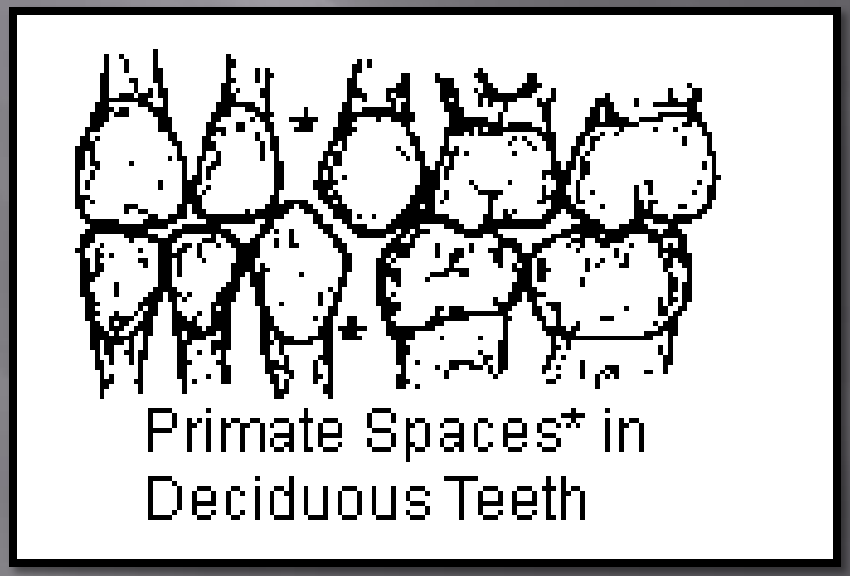
Using physiological diastema of deciduous dentition.

- In the 70% maxilla, 63% mandible of the children, in milk dentition have a physiological diastema.

- In case of lack of diastema, increased risk of crowding approximately 40%

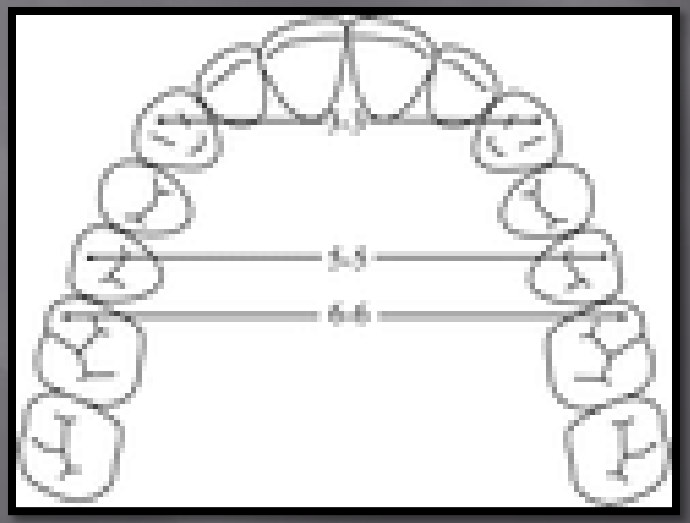
Place preparation in the anterior region

- Using of monkey space approximalty ≈1-2mm



Place preparation in the anterior region

- Increase intercanine arch width
- Maxilla ≈4.5mm, mandibular ≈3mm

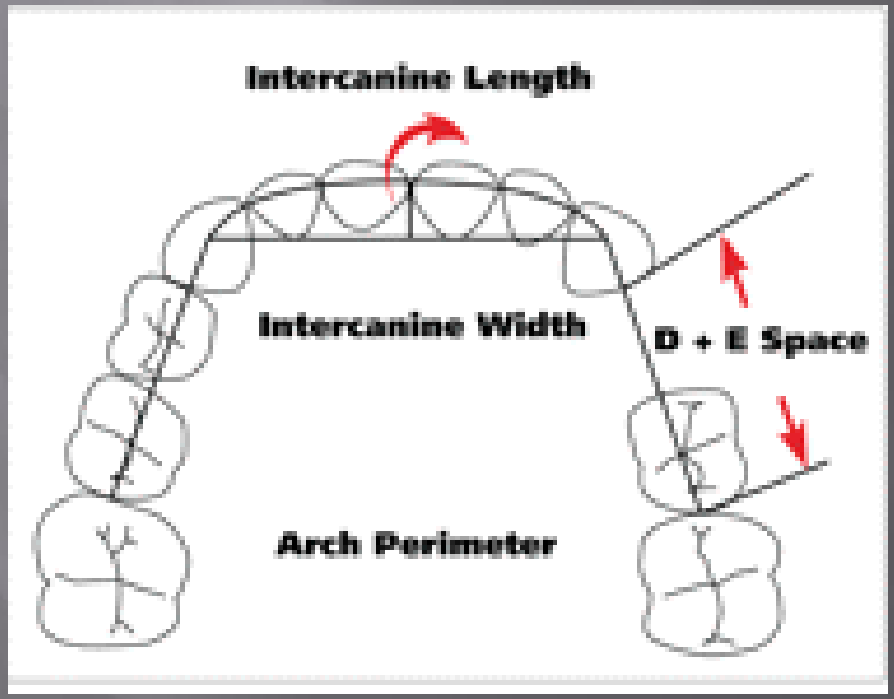


Place preparation in the anterior region

- Increase intercanine arch width
  - 3-5 age→small increase
  - 5-9 age→rapid and significant increase (with the eruption of central and lateral incisors)
  - 14 age →decrease (0.5-1.5mm)
- Higher in individuals without physiological diastema
- Boys: maxilla=6mm, mandibular=4mm
- Girls :maxilla=4.5mm, mandibular=3mm

Place preparation in the anterior region

- Increase intercanine arch length: incisors erupted more labiyally = 1-2mm



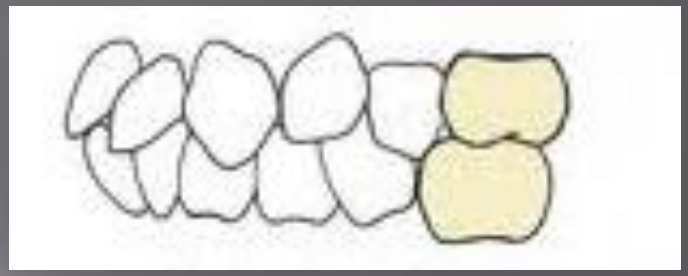
Other factors in place preparation of the anterior region

- Must be appropriate size ratio between milk and permanent incisor
- The ideal ratio: large deciduous incisor
  small permanent incisor
  ↓
  decrease the incisor liability
- In mandibular arch, the size rate between the deciduous and permanent incisor less than maxillary

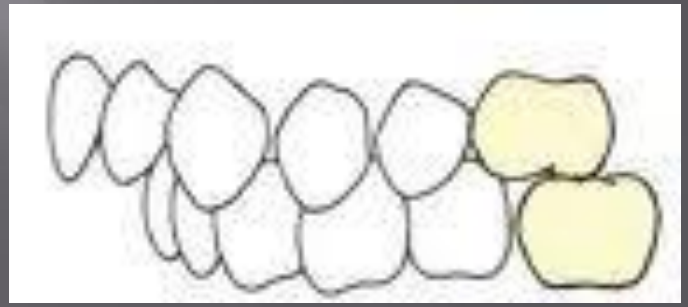
Posterior occlusion

- The occlusion of the deciduous second molar:

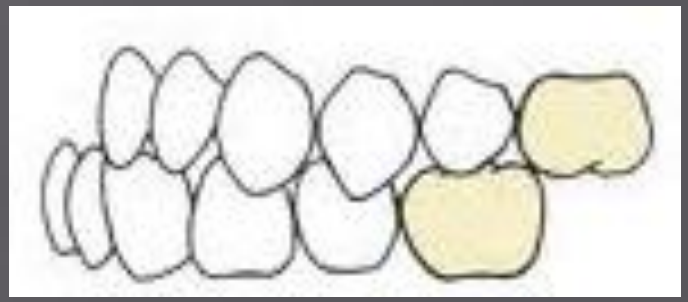
%76 Flush terminal plane



%10 Distal step



%14 Mesial step



The establishment of posterior occlusion

Existing the physiological diastema

↓

- Early mesialization
- Late mesialization
- Differential growth

The establishment of posterior occlusion

- Early mesialization:, After the eruption of the mandibular permanent 1. molar, using the monkey space to fit the mesial step molar relationship

The establishment of posterior occlusion

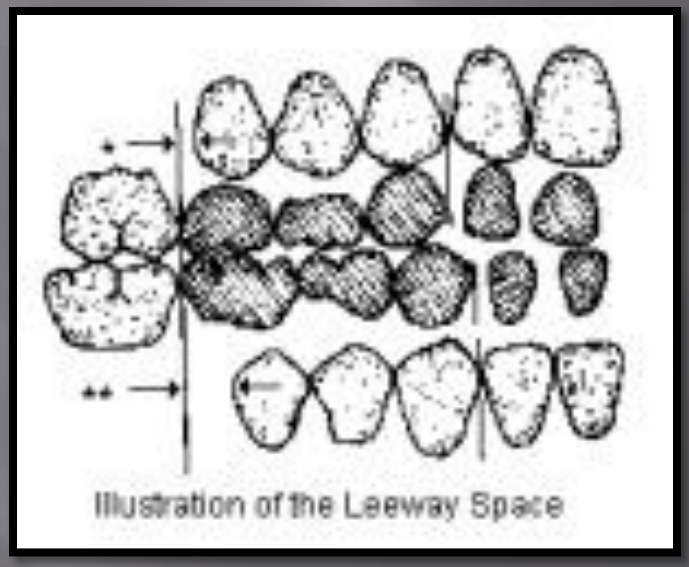
Early mesialization leads to loss arch length

The establishment of posterior occlusion

- Late mesialization: Leeway space, After the exfoliate of second milk molar teeth use it for mesialization of the permanent first molar teeth.

Leeway space?

- MD 3+4+5 < III+ IV+V
- Maxilla :0.9mm X 2
- Mandibular: 1.7 mmX2



The factors that affect in Leeway space using

- Maxillar molars erupted before the mandibular molars
- Lost of material due to decay in the deciduous second molar
- Early extraction of the deciduous second molar due to decay

The establishment of posterior occlusion

Differential growth

Mandibular growth >maxillar growth

Other changes occurring in the dental arch in mixed dentition

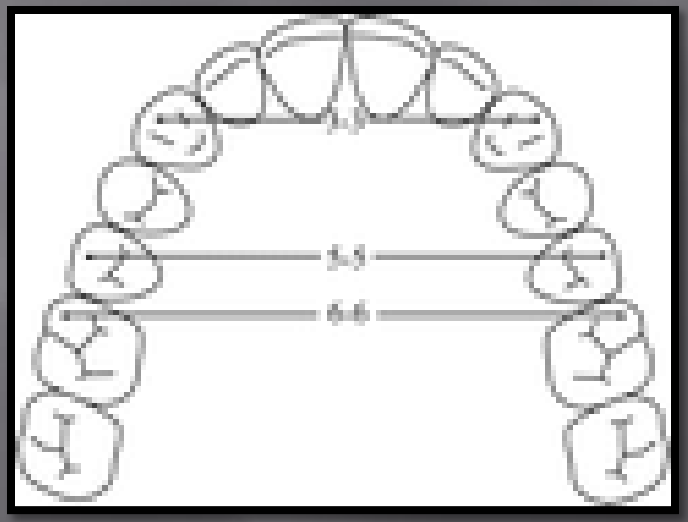
- Arch form
- Intermolar arch width
- Intermolar arch length
- Overbite

Other changes occurring in the dental arch in mixed dentition

- Arch form: trapezoidal form, which is mostly in deciduous dentition does not change during the period of mixed dentition.

Other changes occurring in the dental arch in mixed dentition

- Intermolar arch width: its the arch width between the central fossa of the permanent first molars



Other changes occurring in the dental arch in mixed dentition

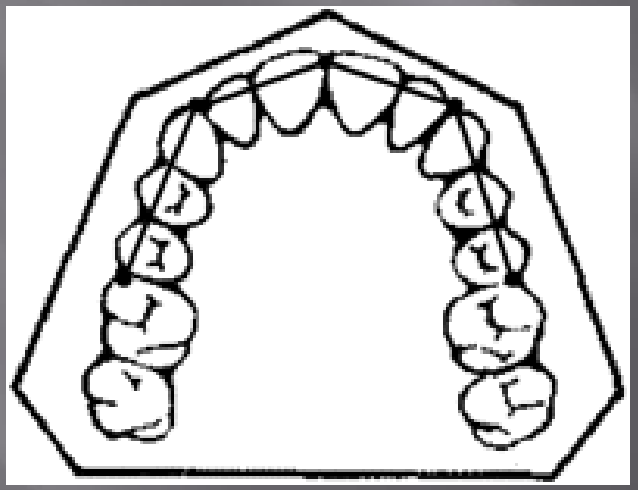
- Intermolar arch width

7-11 age →increas in maxilla 1.8mm, mandibular 1.2mm

11-15 age → decrease (due to after the loss of deciduous molars, permanent first molar drift mesially)

Other changes occurring in the dental arch in mixed dentition

- Intermolar arch length: it's the length between mesial surface of the permanent 1. molar

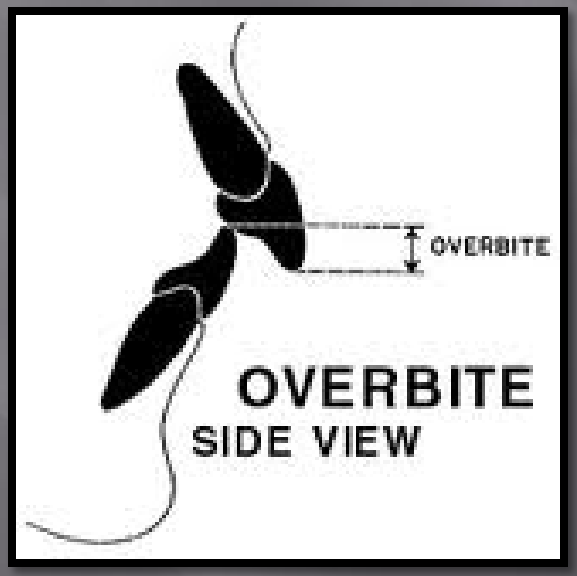


Other changes occurring in the dental arch in mixed dentition

- 6-12 age ⟶ in maxilla ↑ 1 mm
  in mandibular ↓ 1.1 mm

Other changes occurring in the dental arch in mixed dentition

- Overbite: decrease with the eruption of the permanent premolar and seconed molars



Arch lengths

	Deciduous	Mixed	Permanent
Maxilla	68.2mm	75.8mm	74mm
Mandibular	61.8mm	67.8mm	64.4mm

Thank you