OCCLUSION

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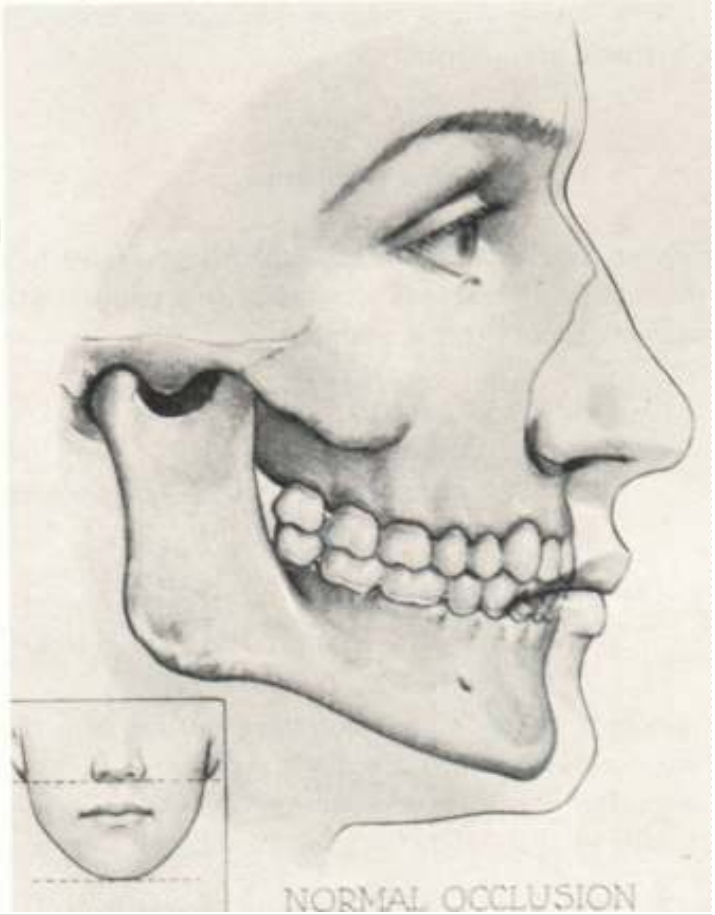
WHAT'S OCCLUSION ?

Tooth contact relationship between the maxillary & mandibular teeth during function



Types of mandibular movements

***Vertical plane**

***Horizontal plane:**

- *Lateral movements*
- *Forwards (protrusion)*
- *Backwards (retrusion)*

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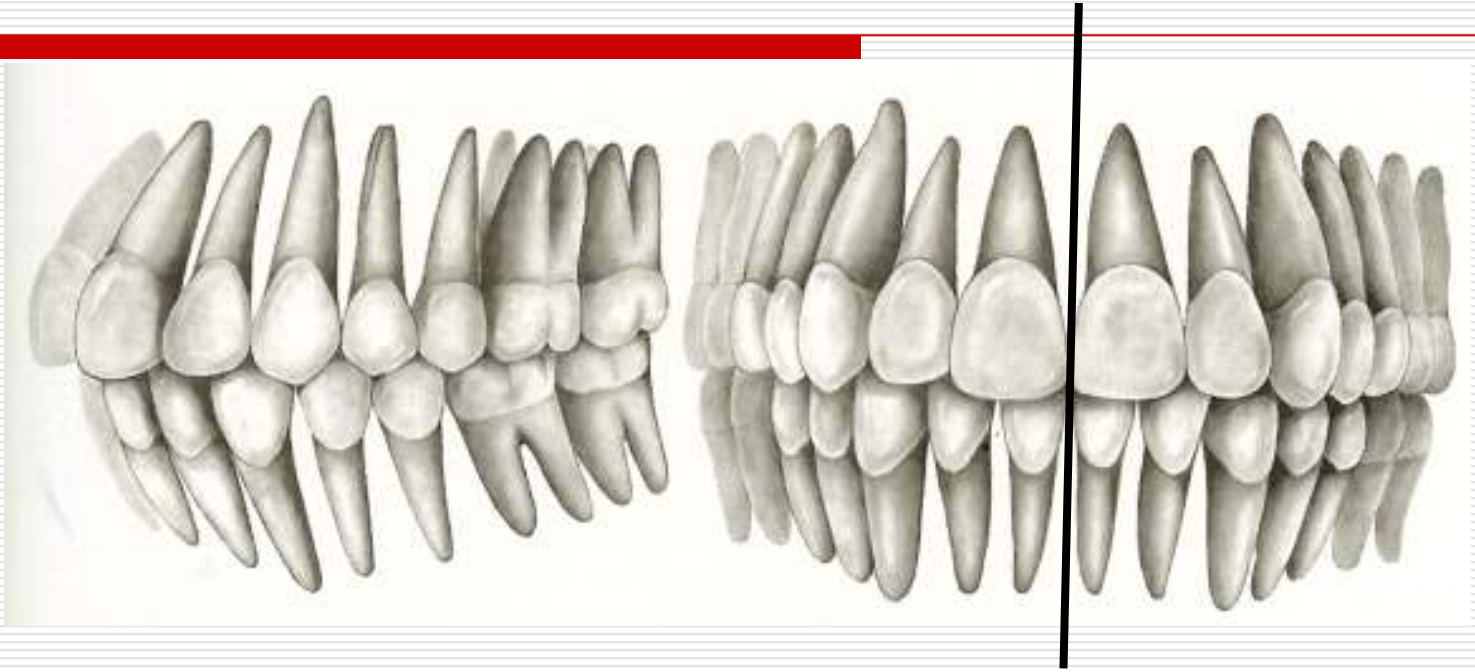
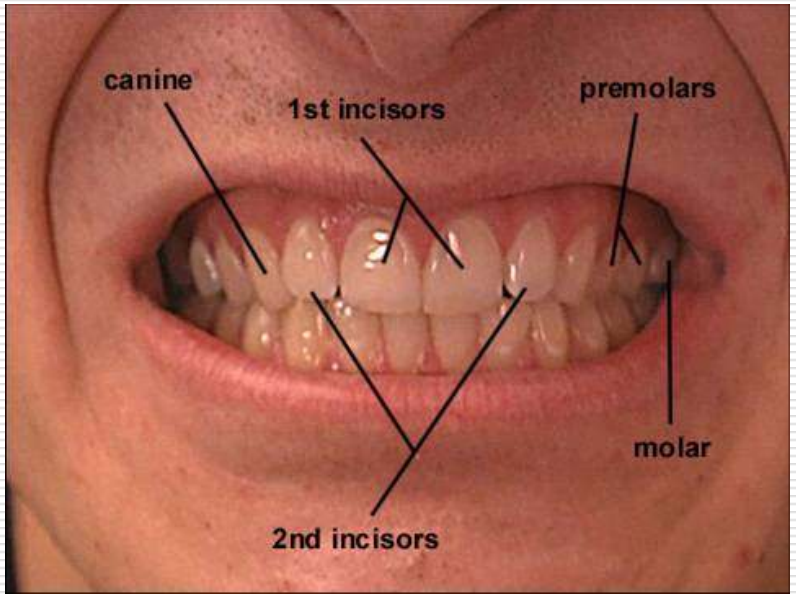
CENTRIC OCCLUSION



- **The maxillary teeth overlap the mandibular ones**
- **The mesial surfaces of the upper & lower central incisors are in one line at the median plane**

Importance of normal occlusion

- *Mastication*
- *Speech*
- *Appearance*
- *Stability*



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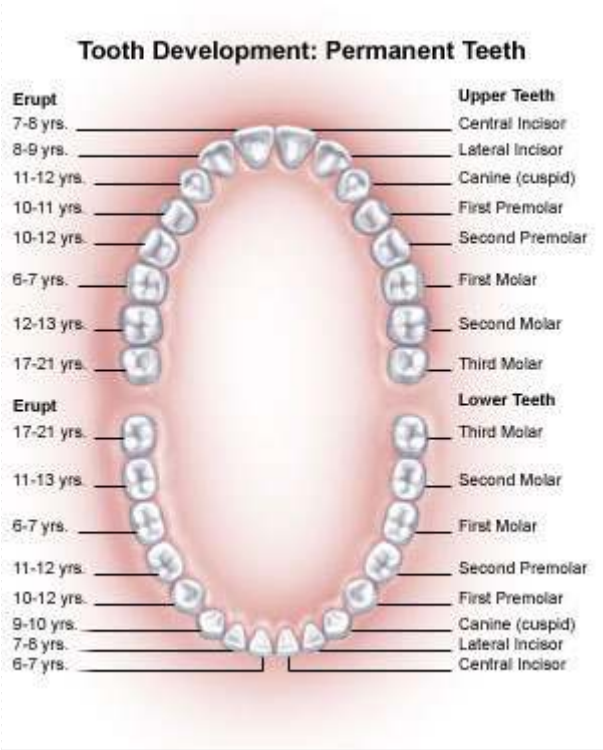
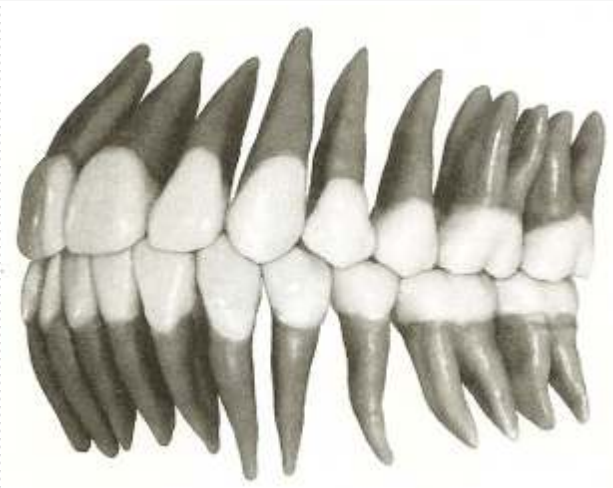
*Dental arches size & form

Importance of such design:

-***Protective features (against cusps clash & tissues clipping)***

-***Extension of mandibular movements***





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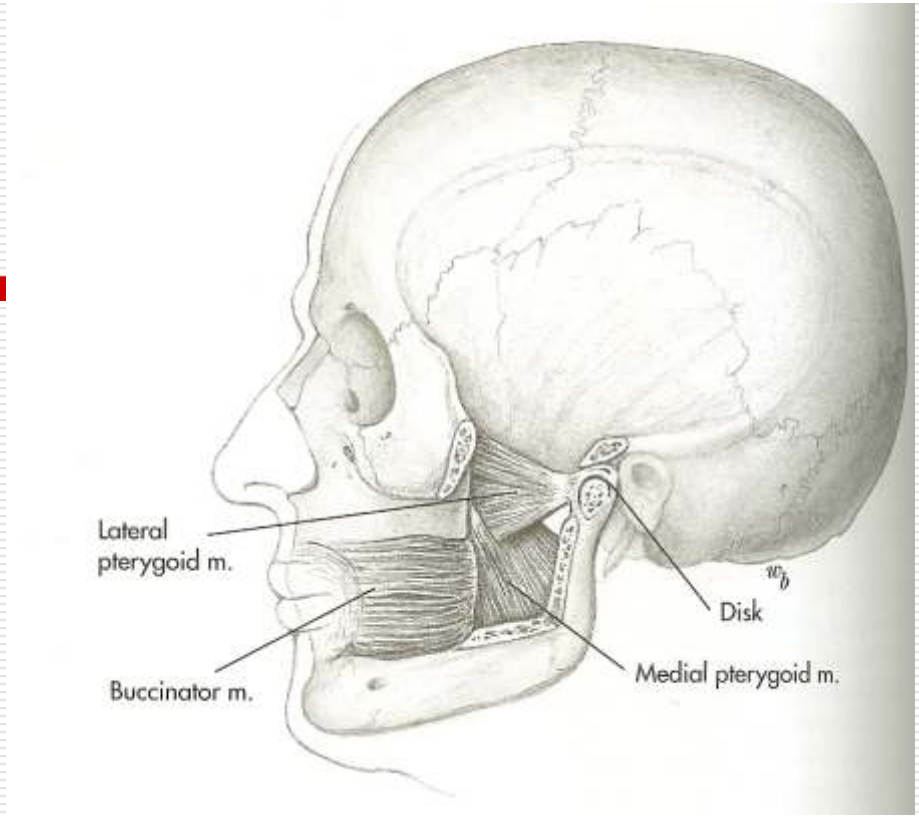
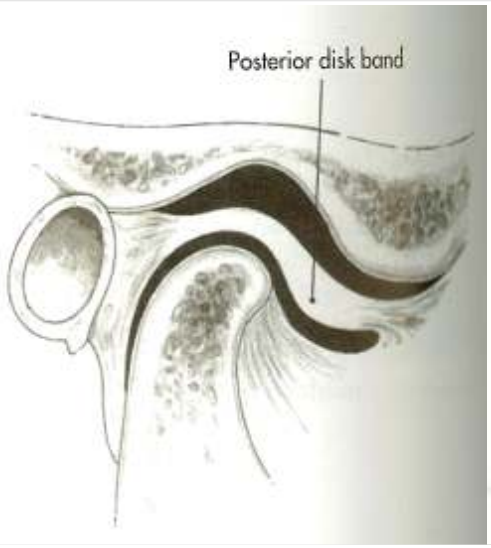
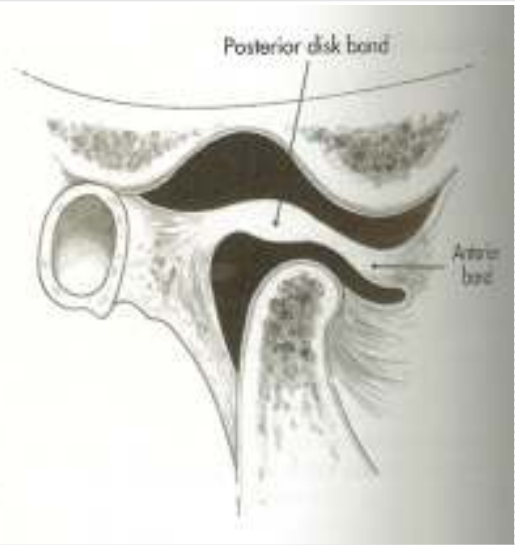
DEFINITION OF CENTRIC OCCLUSION

Maximal intercuspation between the upper & lower teeth

The mandibular condyle is resting unstrained in the most posterior position in the glenoid fossa







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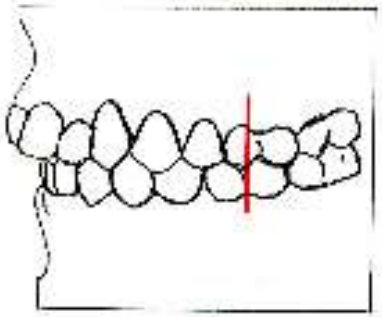
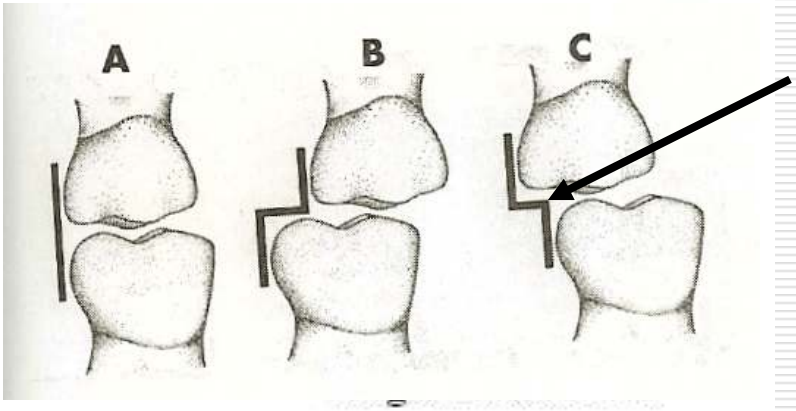
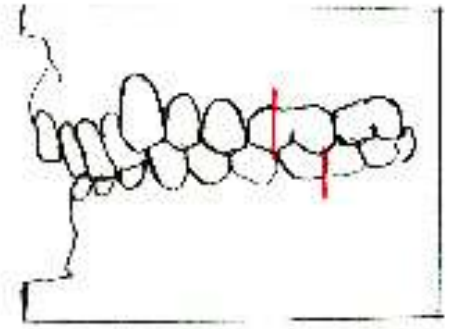
In normal centric occlusion the mesiobuccal cusp of the maxillary first molar should overlap & be in line with the mesiobuccal groove of the mandibular first molar



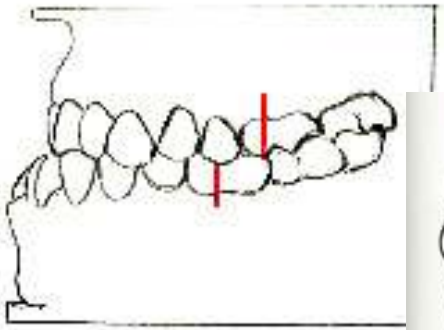
Angle Class I



Mesial step terminal plane is a favorable relation in deciduous dentition for a highly probable normal occlusion in future permanent dentition

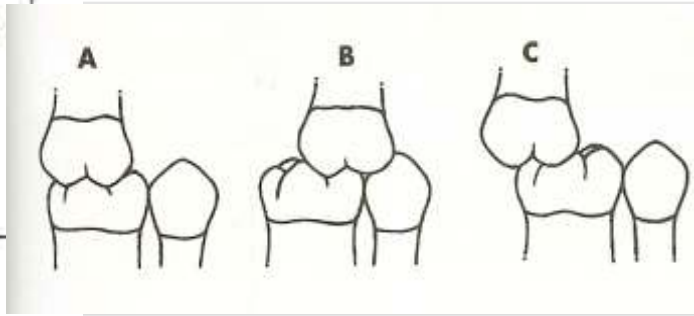


Angle Class II / 2



Angle Class III

I II III



First molars relationship as a key of occlusion

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CENTRIC OCCLUSION CLASSIFICATION

CLASS I NORMAL RELATION

CLASS II MALOCCLUSION

The mesiobuccal groove of $\underline{6}$ is in a posterior position to the mesiobuccal cusp of $\underline{6}$

CLASS III MALOCCLUSION

The mesiobuccal groove of $\underline{6}$ is in an anterior position to the mesiobuccal cusp of $\underline{6}$

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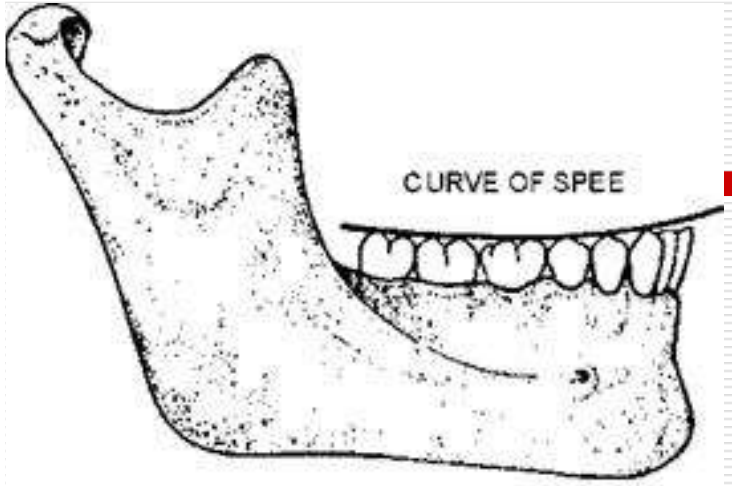
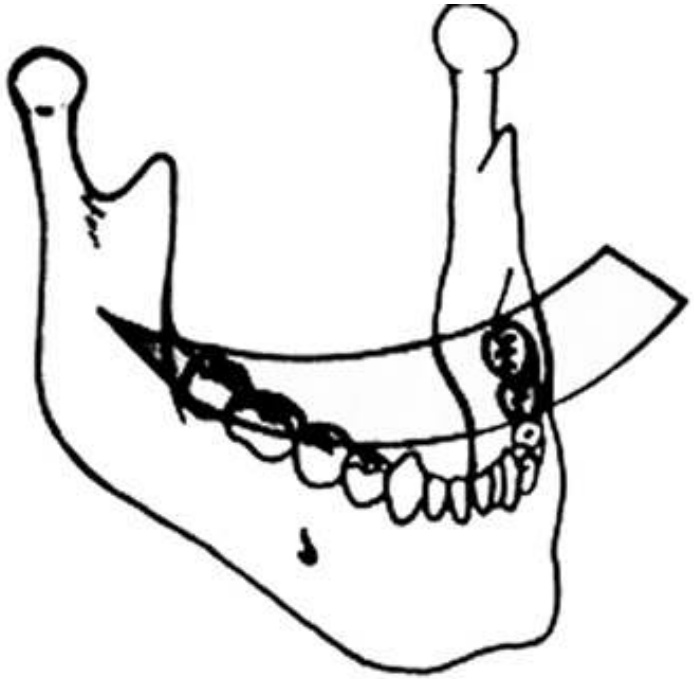
Curvatures of occlusal planes



Curve of Spee

The incisal ridges & buccal cusps tips follow a curved alignment from a lateral view



Sphere of Monson

The occlusal plane follows a 3-dimensional spherical curvature passing along the occlusal surfaces of the right & left posterior mandibular teeth as well as the condyles.

This sphere is 8-inch diameter

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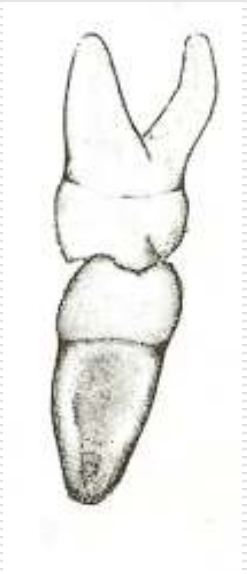
Eccentric mandibular movements

Centric occlusion

Protrusive movements

-Anterior teeth are brought together

-No contact between the posterior teeth



Retrusive movements

-Limited

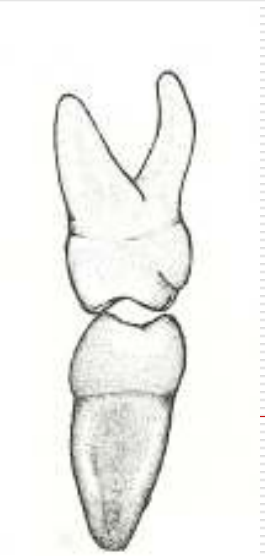
Working side

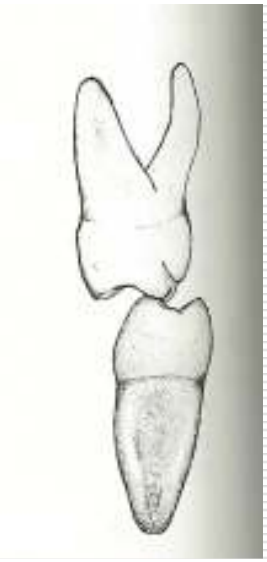
NonWorking side

Lateral movements

-To the right & left directions

-Working & nonworking sides





e.g. Right contact relation during lateral movements

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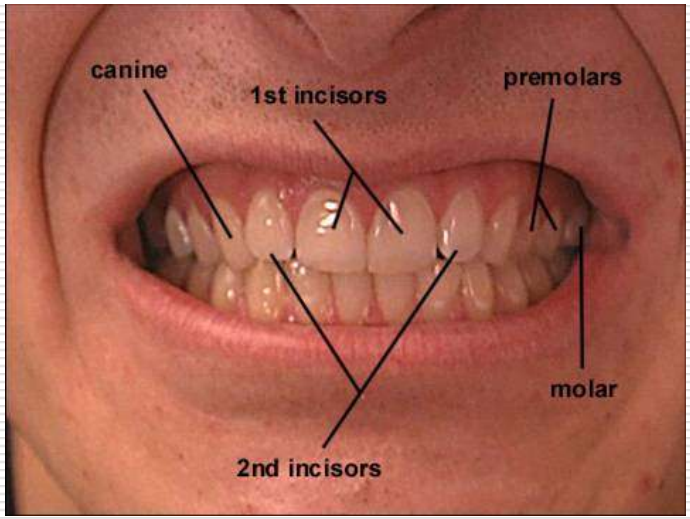
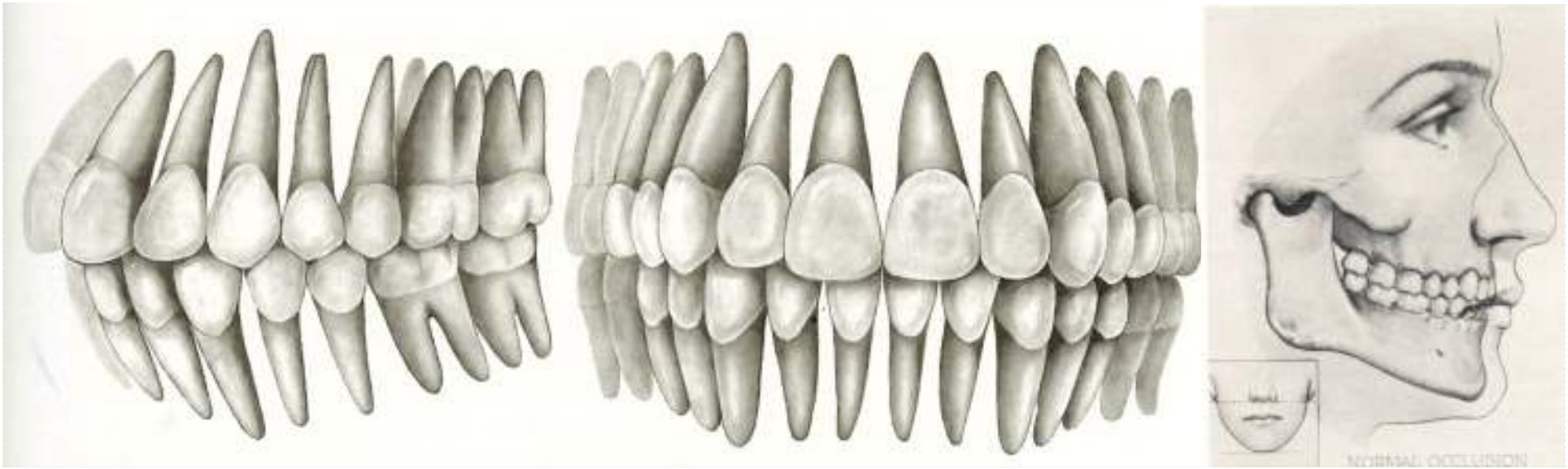
GENERAL CHARACTERISTIC SIGNS OBSERVED IN THE INTERCUSPAL RELATION BETWEEN THE 2 ARHES IN NORMAL CENTRIC OCCLUSION

1) The median plane alignment of central incisors mesial surfaces



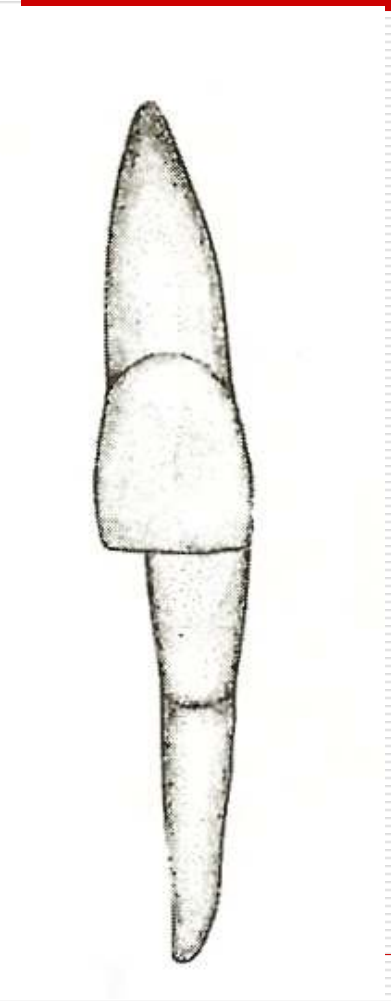
2) Each tooth in the dental arch occludes with 2 antagonist teeth in the opposing arh except 2 teeth ??

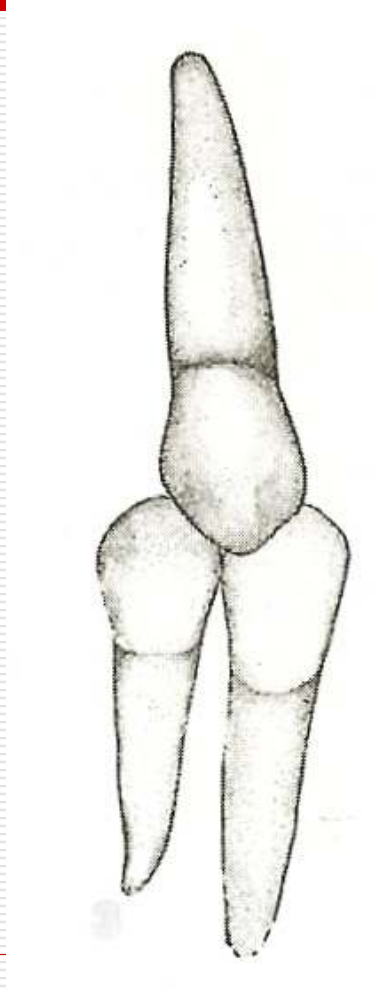


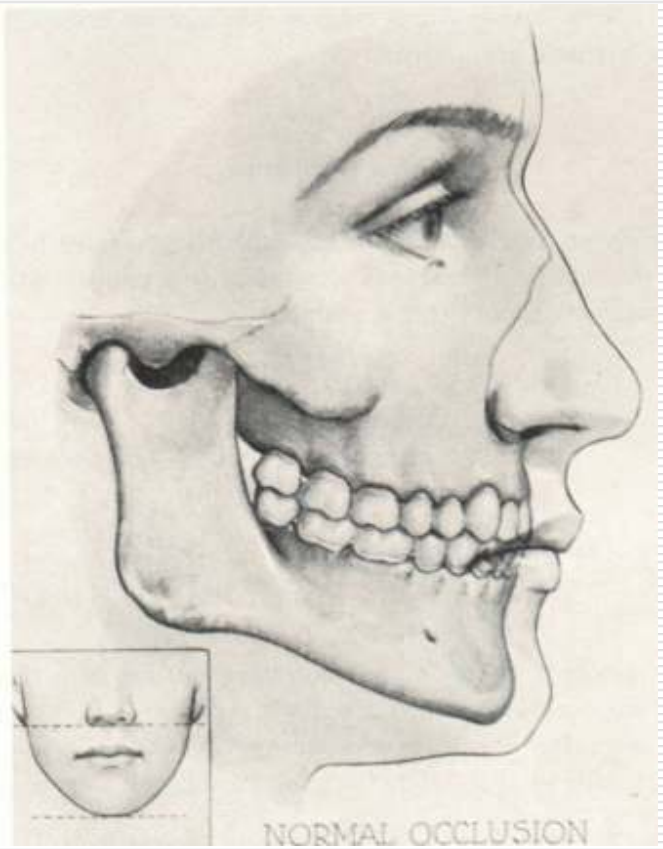
Importance of such design:

a- Stabilizing teeth in position & prevention of tooth elongation in case of loss of opposite one

b- better distribution of forces







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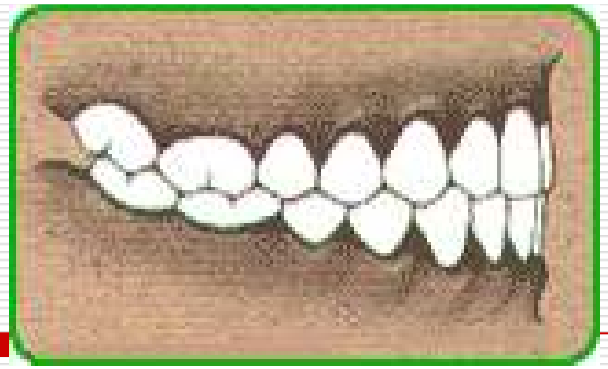

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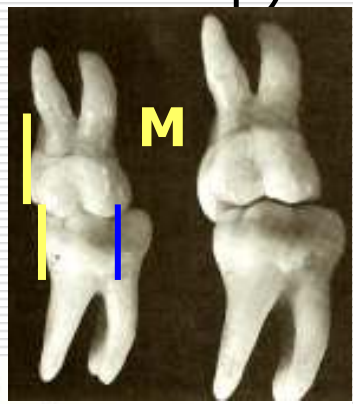
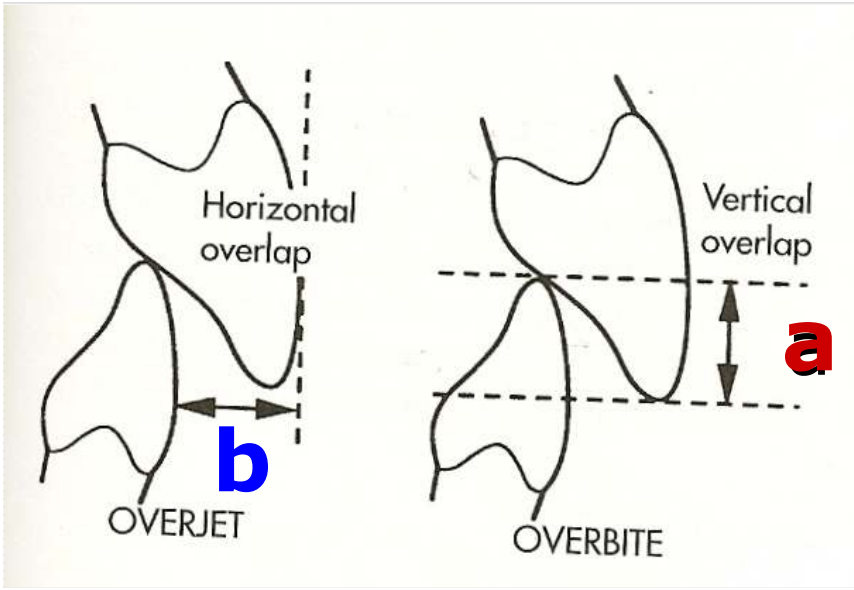
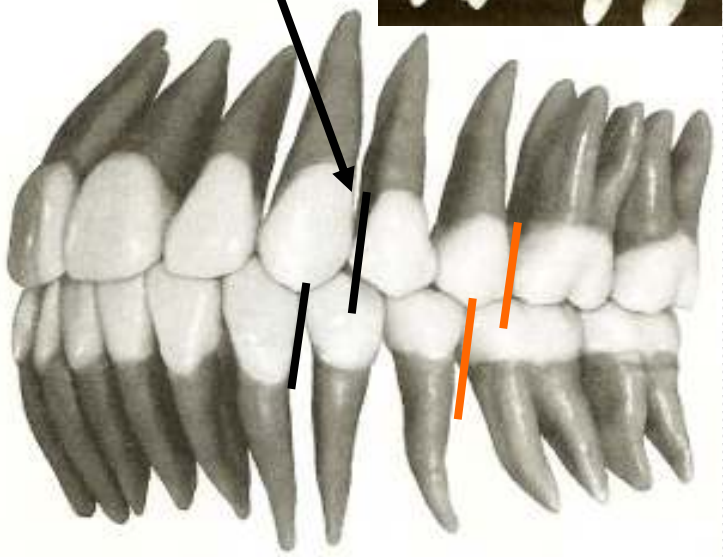
3) Each maxillary tooth is in a more distal position to its antagonist in the mandibular arch (this is reflected in the molar relationship)

4) <u>Overlap relationship</u>

a- Overbite (vertival overlap)
b- Overjet (horizontal overlap)







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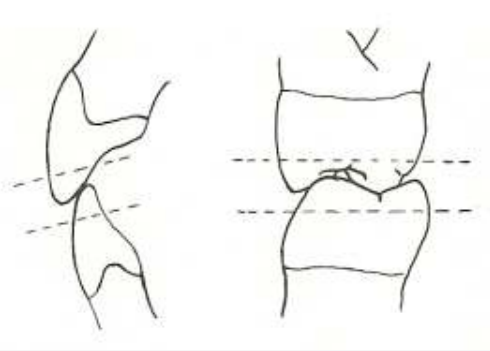
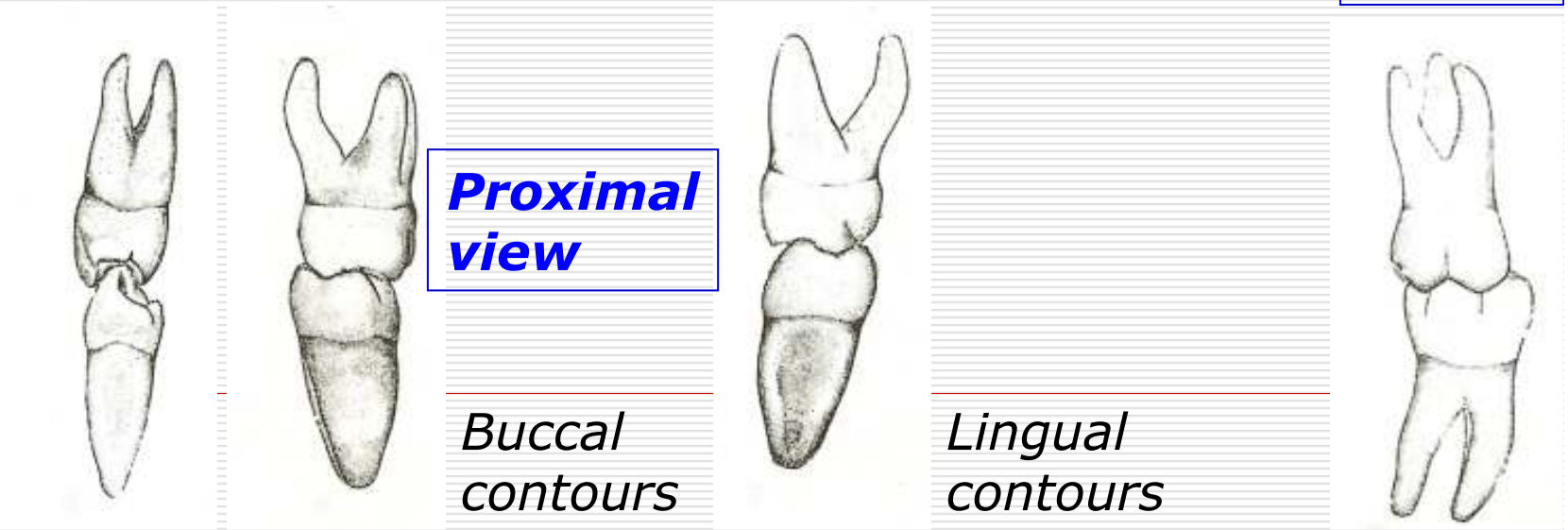


5) Intercuspal relationship, as the curved occlusal surfaces of upper & lower teeth come into contact with each other as follows:

-The incisal ridges of the mandibular anterior teeth contact the lingual surfaces of the maxillary ones

-The buccal cusps of maxillary teeth overlap the buccal cusps of mandibular ones, while the upper lingual cusps occlude with the fossae & central grooves on the occlusal surfaces of their lower antagonists

Buccal view

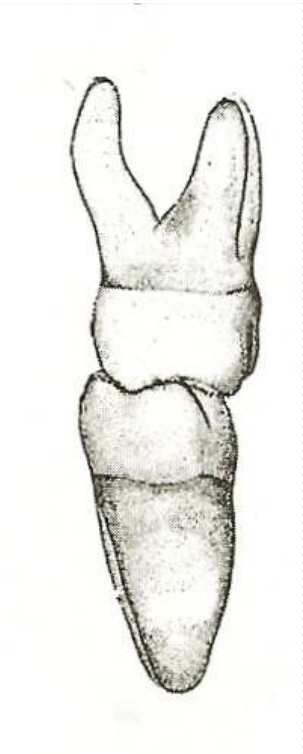


Proximal view

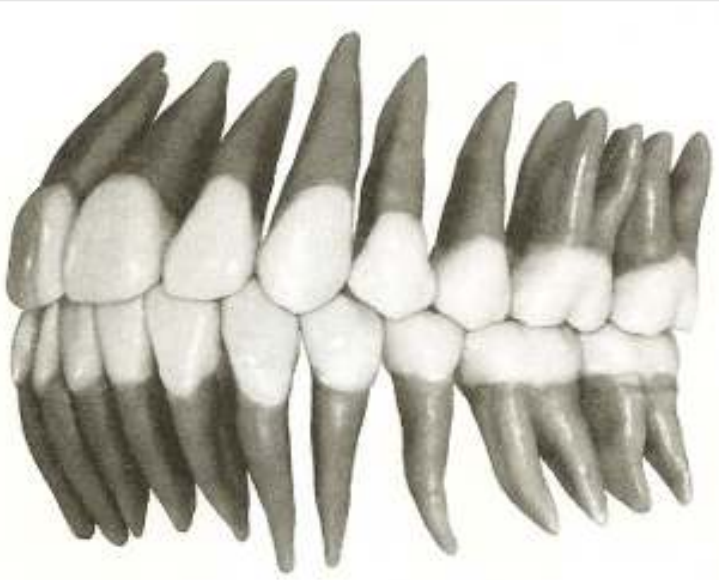
Buccal contours

Lingual contours

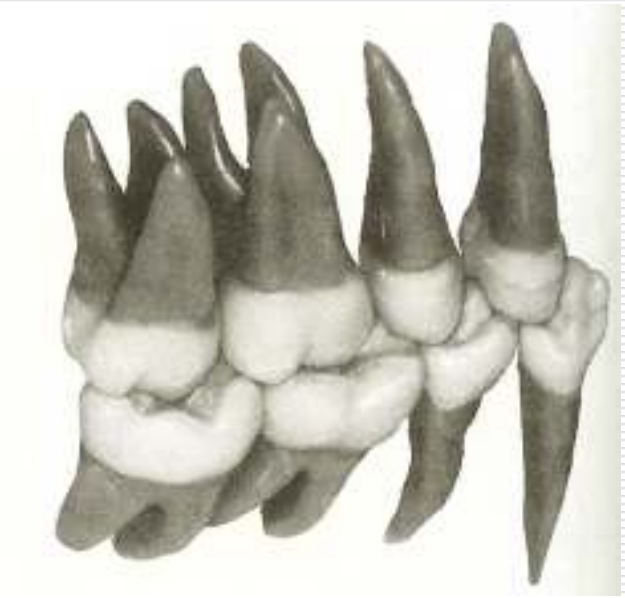
-The lower buccal cusps occlude with the opposing central grooves & fossae on the occlusal surfaces of their upper antagonists, while the lower lingual cusps are situated in a lingual position to the upper lingual cusps



Facial view



Lingual view



The maxillary lingual cusps & mandibular buccal cusps are the supporting cusps that constitute centric stops in centric occlusion

*** What are the escapment spaces ?**

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WHEELER'S BOOK PAGES:

Introduction section: 437

Overview of primary occlusion: 439 - 440

Effects of terminal plane relationships: 443

Dental arch form + Overlap of the teeth: 451 – 454

Curvatures of occlusal planes: 454 *(just the definitions of curve of Spee & sphere of Monson)*

Functional form of the teeth at incisal and occlusal thirds + Facial and lingual relations of each tooth in one arch to its antagonists in the opposing arch in centric occlusion + Occlusal contacts and intercuspal relations between arches: 456 - 461

Lateral movements: 468

Protrusive movements: 469

SEE THE FOLLOWING FIGURES:

16-4, 6, 16, 17, 18, 20, 21, 22, 23, 24, 28, 30, 31, 39