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)
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

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Importance of normal occlusion

- Mastication
- Speech
- Appearance
- Stability
*Dental arches size & form

Importance of such design:

- Protective features (against cusps clash & tissues clipping)
- Extension of mandibular movements
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.

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

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 6 is in a posterior position to the mesiobuccal cusp of 6

CLASS III  MALOCCLUSION
The mesiobuccal groove of 6 is in an anterior position to the mesiobuccal cusp of 6
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

Protrusive movements
- Anterior teeth are brought together
- No contact between the posterior teeth

Retrusive movements
- Limited

Lateral movements
- To the right & left directions
- Working & nonworking sides

e.g. Right contact relation during lateral movements
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
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) Overlap relationship
   - Overbite (vertical overlap)
   - Overjet (horizontal overlap)
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
-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.

*What are the escapment spaces?

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

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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:

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