05 Development of Orofacial Structures

- Palatal development
- Tongue development
Palatal development

- The fifth week ~ the twelfth week of prenatal development
- Primary palate → secondary palate → completion of palate

<table>
<thead>
<tr>
<th>Table 5-1</th>
<th>Development of the palate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fifth to sixth week</td>
<td><strong>Primary palate:</strong> intermaxillary segment from fused medial nasal processes</td>
</tr>
<tr>
<td>Sixth to twelfth week</td>
<td><strong>Secondary palate:</strong> fused palatal shelves from maxillary processes</td>
</tr>
<tr>
<td>Twelfth week</td>
<td><strong>Final palate:</strong> fusion of all three processes</td>
</tr>
</tbody>
</table>

[Diagram showing the regions of the palate: hard palate, soft palate, primary palate, secondary palate]
Intermaxillary segment
Palatal shelf
Maxillary process
Nasal septum

Intermaxillary segment
Maxilla with 4 incisor teeth
Philtrum of lip
Primary palate
Fused palatal plates

Palatal development

Primary palate formation

- During the fifth week, fusion of the two medial nasal processes → **Intermaxillary segment (= premaxillary segment)** formation

- Intermaxillary segment forms primary (primitive) palate, a triangular mass

- Floor of developing nasal cavity and nasal septum

- Anterior one third of final hard palate

- Incisive foramen, maxillary incisor teeth.
Palatal development

Secondary palate formation

- During the sixth week, bilateral maxillary processes form two palatal shelves (lateral palatine processes)
  - Vertical growth → elevation → horizontal growth

- BOTH fusing together to form secondary palate (fusing from anterior to posterior) → median palatine suture

- posterior two thirds of hard palate

- Maxillary canines and posterior teeth, posterior to incisive foramen
Median palatine suture

Median palatine raphe
Palatal development

Completion of palate
**Developmental disturbances of the palate and associated tissue**

- Cleft palate/ cleft uvula
Tongue development

- The fourth ~ eighth weeks

- Develops from independent swellings located internally on floor of the primitive pharynx, formed by first four paired branchial arches
  1. Body: develops from first branchial arch: tuberculum impar, lateral lingual swelling
  2. Base: originates later from second, third, fourth paired branchial arches: copula, hypobranchial eminence
  3. Body and base fuse together; fusion demarcated by sulcus terminalis.
<Development of the tongue>

- Lateral Lingual Swelling
- Tuberculum Impar
- Body of Tongue
- Root of Tongue
- Foramen Cecum
- Epiglottal Swelling

5 Weeks

- body
- sulcus terminalis
- root
- epiglottis
- Foramen cecum
**Developmental disturbances of the tongue**
- Ankyloglossia