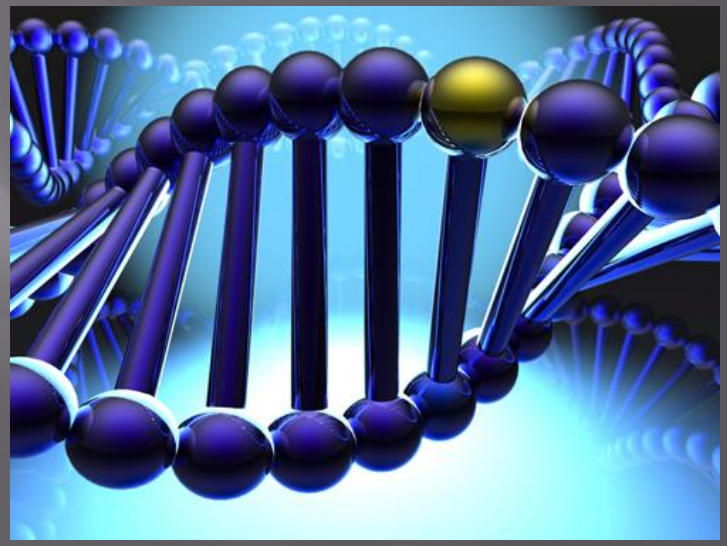
POSTNATAL GROWTH AND DEVELOPMENT OF NASOMAXILLARY COMPLEX

Dr. Ayshan KOLEMEN

The development of whole face

- Factors which affect all the body's growth and development is also effective in the development of face

1. Genetic
2. Environmental



- Face developed in three dimensions, but development speed and the amount varies in every direction.

- The maximum growth
- The minimum growth

- Base of skull and skull

- Face → 20-22 age

Development of The Face

1. Upper face

2. Lower face

Postnatal growth and development of nasomaxillary pattern

- Much less developed at birth
- Small as 3-dimensional
- Sagittal and vertical sizes smaller than the size of the frontal
- Maxilla filled with the tooth germs
- Maxillary sinuses very small , in the form of mild depressions
- Alveolar proces undeveloped and at the same level with the palate

Nasomaxillary Conjunction

- Maxilla, palatal proces premaxilla area, zygomatic proces, maxillary sinus and base of the orbital
- All these structures has become a complicated structure

Maxillary connect with other facial and cranial bones by sutures

- In sagittal plane observed 4 main suture:

1. Frontomaxillary suture
2. Zigomaticomaxillary suture
3. Zigomaticotemperal suture
4. Pterygotemporal suture

- The development of the nasomaxillary complex consists of two main basic prinsiple:

1. Displacement of the maxilla according to the base of the head in space (translation)
2. Maxilla in its own body show the local formations (dimensional change, re-shaped (remodeling)).

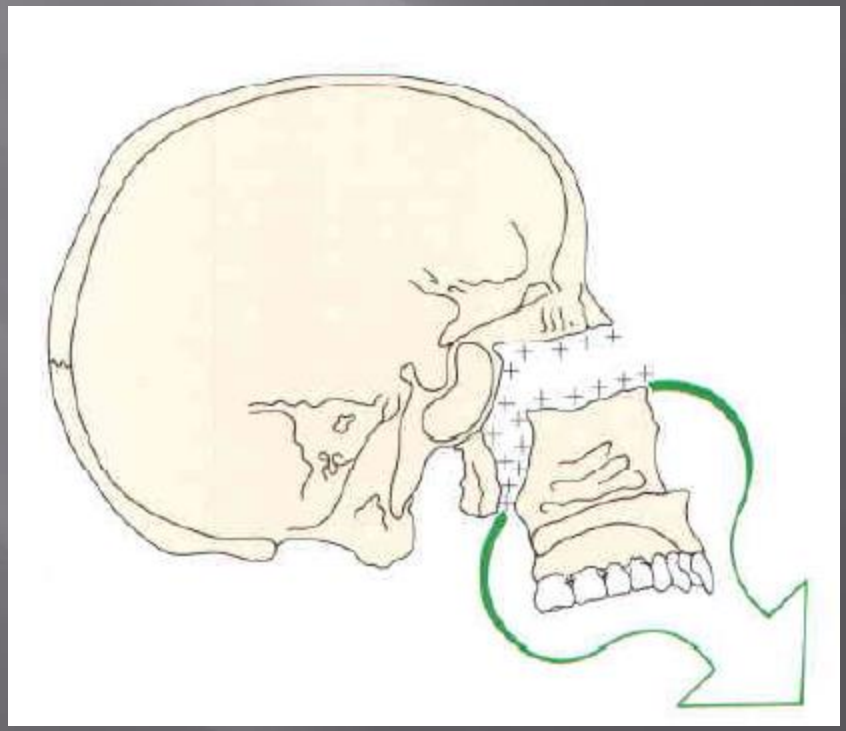
Translation

- the movement takes place with activities related to sutures
- When maxilla completely replaced for forward and downward, all sutures are show development activities.

Translation

- Its faster Until 2 age.
- Decelerate until the pubertal period, is minimized.
- Increased again reaches a maximum in the pubertal period.

- Oblique and downward located of the suture activity responsible on the down and forward movement of the maxilla.
- Sutures activity against the Stable skull base pushes the nasomaxillary combination forward.



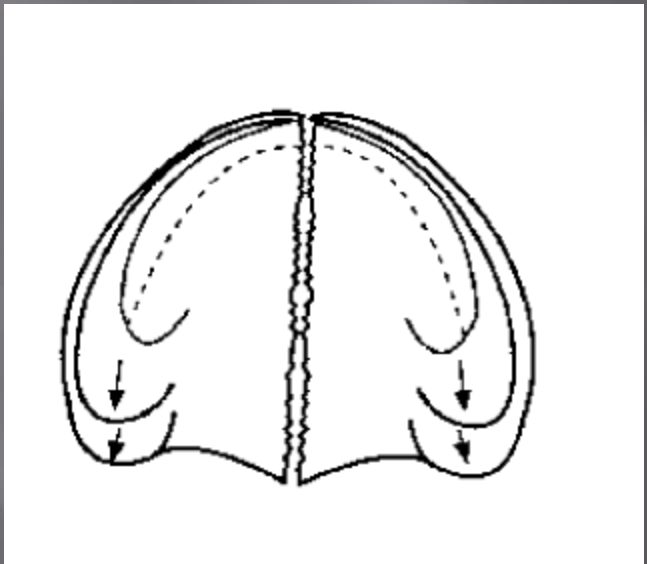
Remodeling

- Protect the adjacent bones relationship
- Go through a new, convenient location

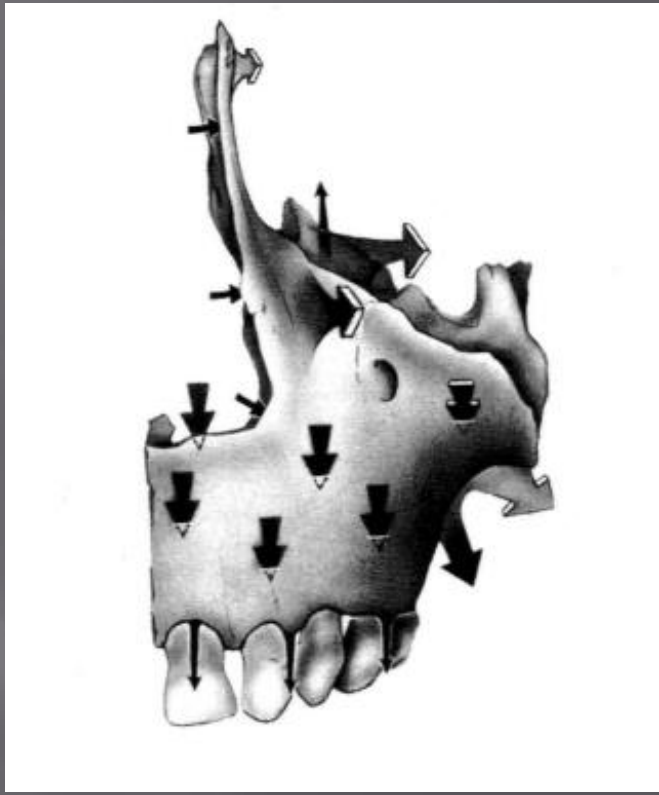
- The complex shape of the nasomaxillary combination occurs as a result of a series of remodeling changes and makes all the maxilla to relocation within the space.

Postnatal growth and development of the maxillary arch and palate

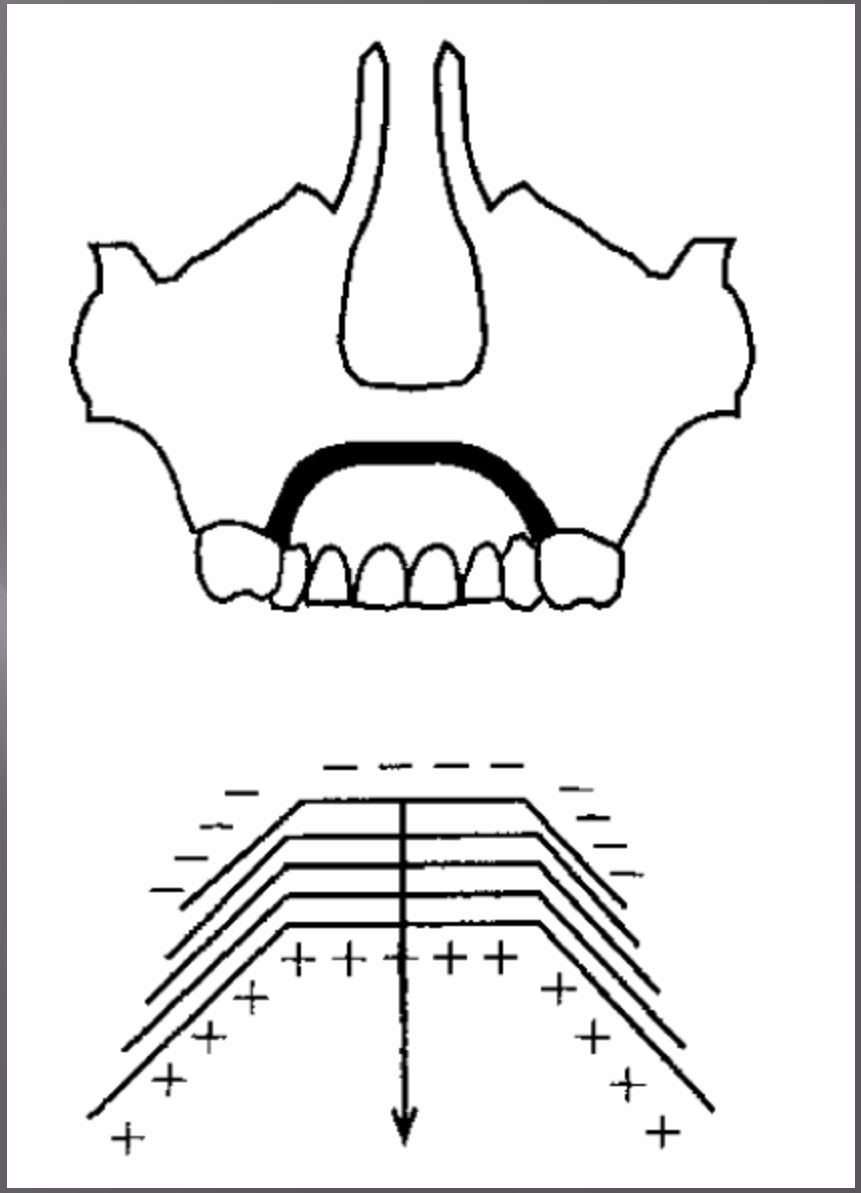
- Dental arch aperture facing posteriorly is Fits in a V-shaped.
- With the expansion in the V form the width of the maxilla increases



- The expansion in the dental arch happened by apposition of bone to the inner lingual surfaces and resorption of bone from the outer buccal surfaces.
- The height of the maxilla increas by the bone accumulation in the alveolar inferior area.



- The vertical cross-section of the palatal arch like a V-shaped.
- palate, all the inner surface in apposition and in the outer surfaces resorption occur.
- When the outer surfaces of a base of the nasal cavities creates, nasal cavity expansion in vertical direction when maxilla moved downward.



- There are two V-shaped maxilla arch

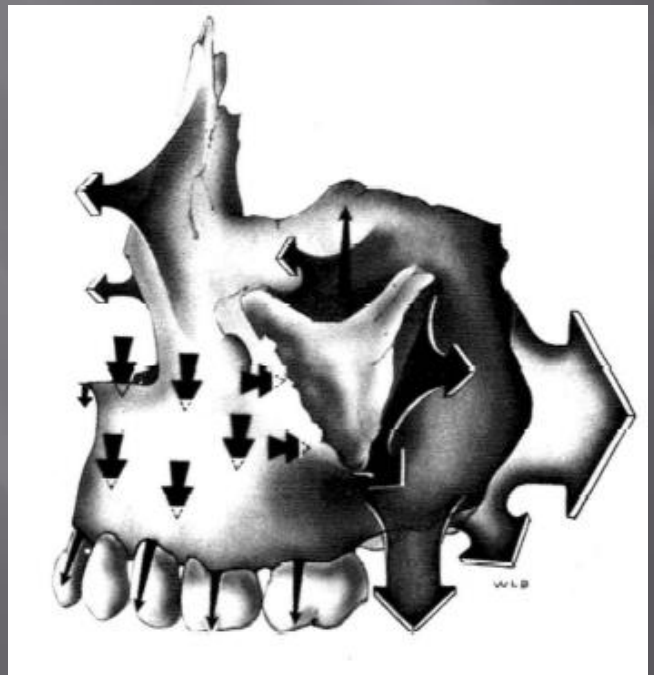
Dental arch ⟹ Horizontal

Palatinal arch ⟹ Vertical location show

- In the first V expansion, dental arch Change in the posterior direction.
- In the seconde V expansion palatinal arch change in the inferior direction.

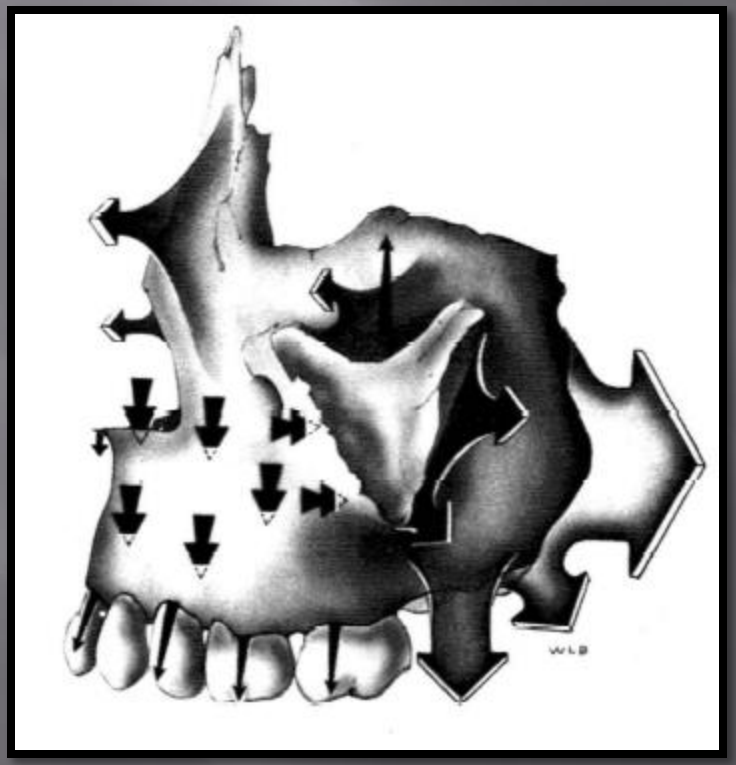
Postnatal Growth and Development Zygomatic Region

- Expansion of the posterior maxilla districts by adding a new bone , zygomatic process changes in the posterior and lateral direction.



- When anterior surface of the maxilla changes to the lateral surface, the resorptive nature also vary. In these regions show bone apposition.

- As a result of The remodeling events, zygomatic process changes in the **posterior and lateral direction.**

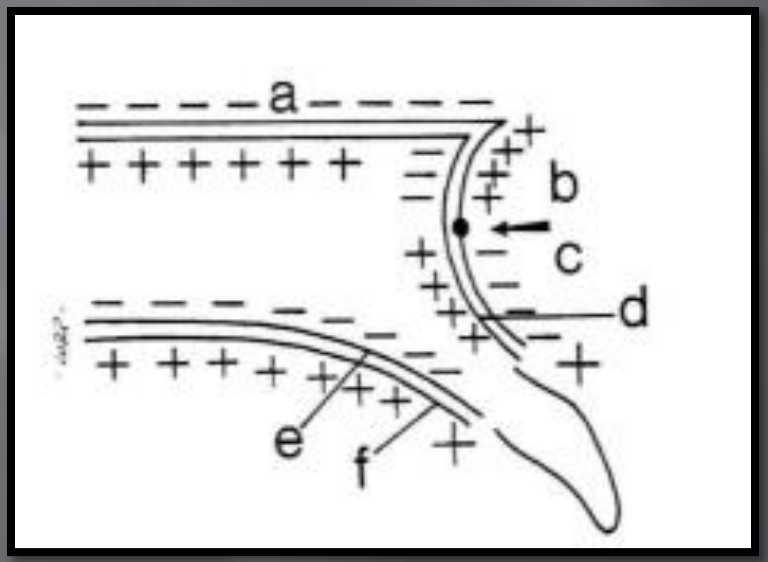


- Posterior change in the position of the zygomatic region's is maintained according to the base of the head, growing maxilla, tuberosity, orbits, and nose.

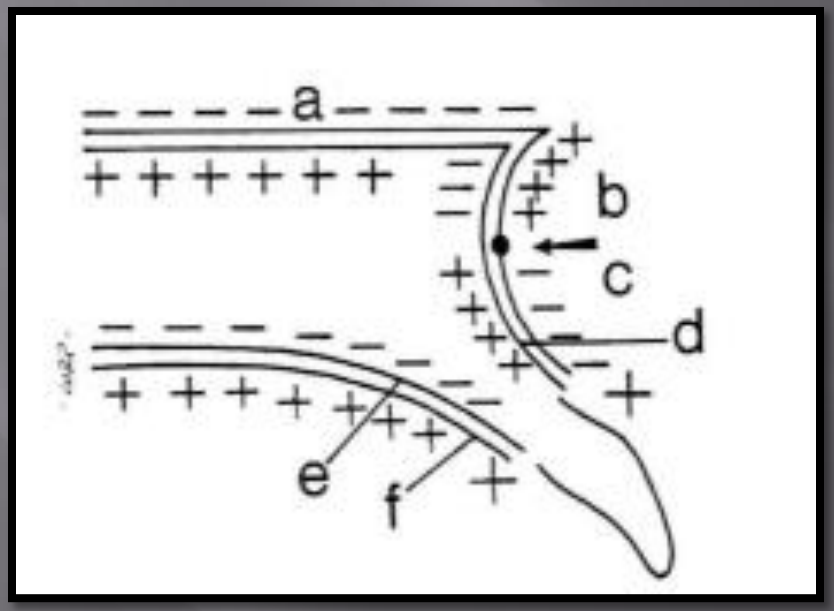
- Lateral movement of zygoma allows expansion of the face.
- Both the lower and upper edge of zygomatic arch is characterized by bone apposition. for this reason gradually thicker.

Postnatal Growth and Development of the Premaxillary Region

- The anterior teeth separated premaxillary region from each other to labial and lingual bone plaques.
- In the labial cortical bone resorption, lingual cortical bone deposition regions. As result the remodeling events , in both cortex changes to the right.



- Resorptive nature of the labial cortical plate in this region tends to pull back slightly
- The presence of Bone apposition in the anterior region of spina nazalis made retardation further accentuate.



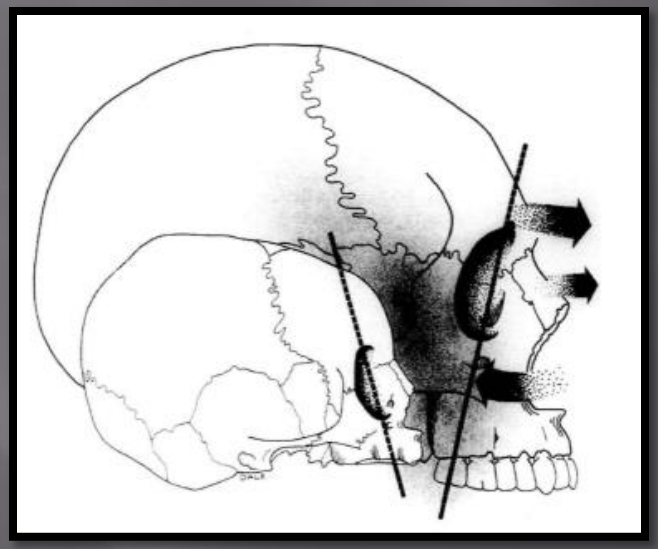
- Parallel to palatal development, all premaxilla changes in space downward.

Postnatal Growth and Development of the Nasal Region

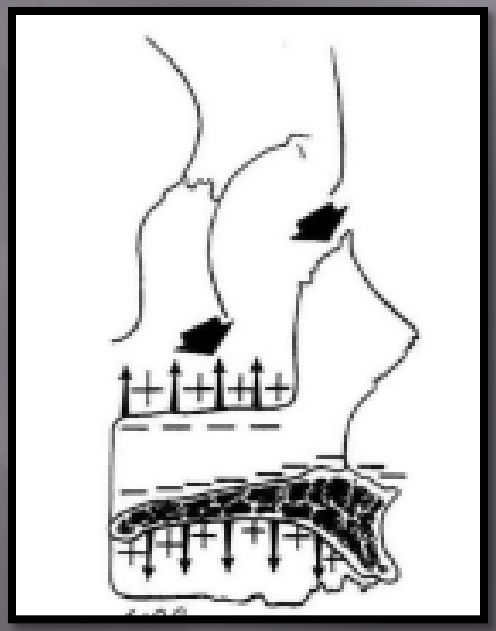
- Nasal region formed by fronta maxilla process and adjacent nasal bones

- Outside surfaces shows bone deposition, nonetheless, this region consists entirely of bone periosteal.
- In the opposite inner surface periosteal resorption and endosteal apposition occurs, nonetheless inner surfaces are consists of the endosteal bone.

- Accumulation of bone to outer surface causes displacement of the area in anterior direction. As a result increases the depth of the nose.
- Bone accumulation in the lateral surfaces of the nose, all the bone cortex shift in lateral direction. Expansion of the nasal cavity as a result of the resorption in the inner region.



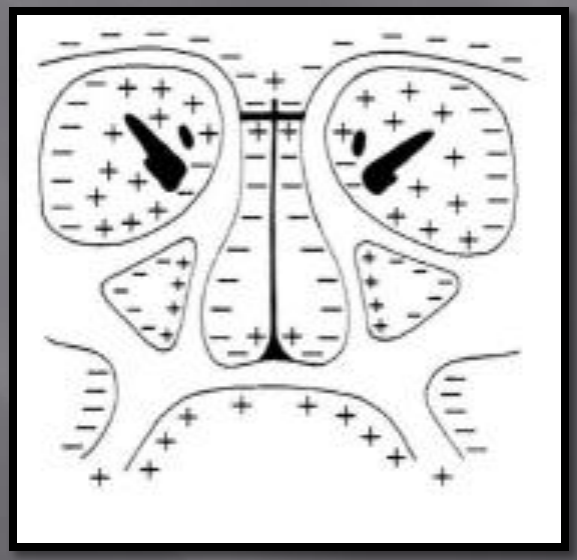
- Increases in the vertical size of the nose, as well as with the palate area changes downwordly and with maxilla displacement downword, due to this response increases bone formation in the frontomaxillary suture.



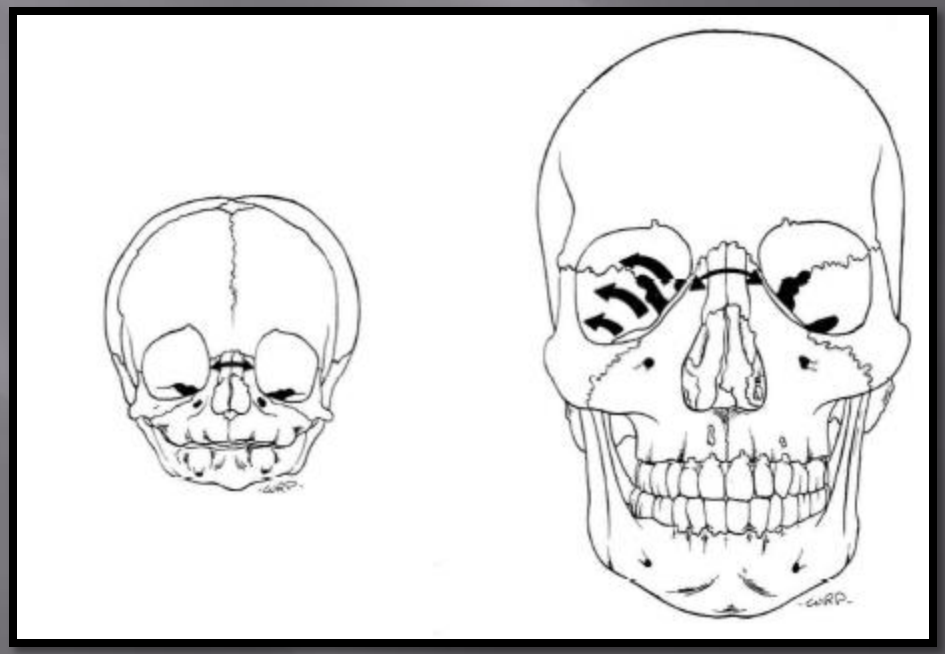
Postnatal Growth and Development of the Orbital Base

- Orbital base consists mainly from the boney structure of the maxilla.
- Here the bone is very thin
- The surfaces in the lateral, superior and anterior directions, shows a settlement adjacent to the nasal wall to make it fit

- When Bone deposition occur in the periosteal surface, while endosteal surfaces forming the upper part of the maxillary sinus show resorptive nature.
- Boney structure formed the base of the orbital, change in lateral, superior and anterior direction.



- The lateral development of the orbital base, while the eyes to be away from each other and also allow the expansion of the nasal cavity.



- The development of the anterior surface of the orbital base in harmony with the development of the upper section of the anterior maxilla.

- The development of the orbital base in the superior direction, allow with compared bone formation in the frontomaxillary suture opposing to maxilla in forword and downword displasment.
- Orbital, creates growth of the maxillary sinus roof in this direction also contribute expansion of the maxillary sinus.