



Bones of the Skull: Structure and Function

Lecture : 4th

المرحلة الأولى

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Bones of the Skull: Structure and Function

Introduction:

serves as a protective enclosure for the brain and sensory organs, also providing attachment points for various muscles.

Cranial Bones:

The skull is composed of **eight** flat cranial bones, which form the rigid upper portion of the skull.

These bones include the

frontal bone,

parietal bones (paired),

occipital bone,

temporal bones (paired),

sphenoid bone, and

ethmoid bone.

The Cranium:

skull act as a protective helmet for brain, its construction by its bone components!

Number of Bones: 22 (8 flat, 4 paired irregular, 10 paired irregular)

Number and Function:

- 14 bones in total, forming the framework of the face.
- Provide structure and support for facial muscles, teeth, and soft tissues.
- Protect vital organs like the eyes, brain, and sinuses.

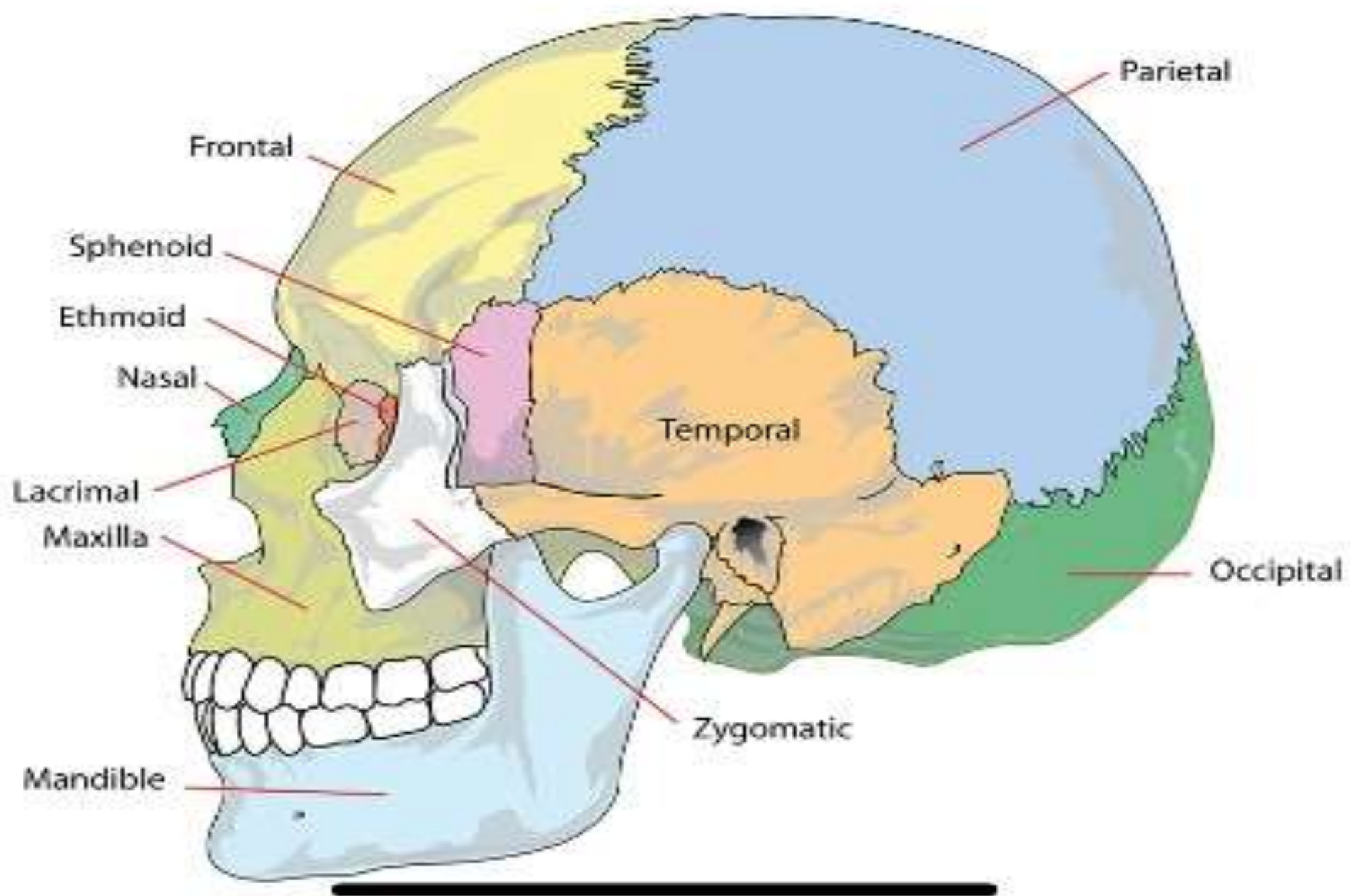
Main Sections:

1-Calvarium (roof):

1. Frontal bone: Forms forehead, contributes to eye sockets (orbits).
2. Parietal bones (2): Roof of skull, meet along sagittal suture.
3. Occipital bone: Back of skull, houses foramen magnum (connection to brainstem).
4. Temporal bones (2): Side of skull, house inner ear and jaw joint (TMJ).
5. Sphenoid bone (paired irregular): Butterfly-shaped, forms base of skull, houses pituitary gland.
6. Ethmoid bone (paired irregular): Honeycomb-like, separates nasal cavity and supports nasal conchae.

2-Facial bones:

1. Maxilla (2): Upper jaw, houses teeth, forms palate and floor of orbit.
2. Mandible (paired irregular): Lower jaw, only movable facial bone, houses teeth.
3. Zygomatic bone (2): Forms cheekbone, contributes to orbits and temporal fossa.
4. Nasal bones (2): Bridge of nose.
5. Lacrimal bones (2): Small, house tear duct.
6. Vomer (single): Thin plate separating nostrils.
7. Palatine bones (2): Form hard palate and floor of orbit.
8. Inferior nasal conchae (2): Scroll-like bones in nasal cavity.



1-Frontal Bone:

The frontal bone forms the **forehead** and **roof** of the orbits. It also houses the frontal **sinuses**. This bone is significant in providing **protection** to the frontal lobes of the brain.

2-Parietal Bones: Form most of the **superior** and **lateral** aspects of the skull.

They articulate with each other at the midline, known as the sagittal suture. It protect the **parietal** lobes of the brain.

3-Occipital Bone:

Forms the **posterior** aspect of the skull. It contains the foramen **magnum**, which allows the spinal cord to connect with the brain. The occipital bone also provides protection to the **cerebellum**.

4-Temporal Bones:

The temporal bones make up the **lateral** walls and the base of the skull. They house important structures like the **middle** and **inner ear**. The mastoid process, along with the styloid process and external auditory meatus, are also found in this bone.

5-Sphenoid Bone:

situated in the **middle** part of the skull
and has a complex **butterfly-like** shape.

It helps form the **central** base of the cranium
and houses important structures,
including the **sella** turcica that holds
the pituitary gland.

6-Ethmoid Bone:

located **between the eyes** and
forms part of the nasal **septum**
and the **orbit**.

It contains numerous small air spaces
and helps in the filtration and
humidification of inhaled air.

Facial Bones:

The skull also consists of **14** facial bones, which provide the **structure** and **support** for the face.

These bones include the

nasal bones,
maxillae (maxillary bones),
zygomatic bones,
mandible,
lacrima bones,
palatine bones,
inferior nasal conchae, and
vomer.

Each facial bone has **unique** characteristics and **functions**.

For example, the mandible is the **largest** and **strongest** facial bone and supports the lower **teeth**.

The maxilla forms the upper **jaw** and supports the upper **teeth**.

The zygomatic bones create the prominence of the **cheeks**.

Number and Function:

- 14 bones in total, forming the framework of the face.
- Provide structure and support for facial muscles, teeth, and soft tissues.
- Protect vital organs like the eyes, brain, and sinuses.

Clinical Significance:

- Fractures: Common due to trauma, require medical attention.
- Deformities: Congenital or acquired, can be corrected through surgery.
- Tumors: Rare but can affect any skull bone.

Bonus Note: Sutures (interlocking joints) connect the skull bones, allowing for slight growth in childhood.

thank
you