

A collection of anatomical specimens, including a pig skull, various bones, and a basket of smaller bones, arranged on a lace tablecloth. The skull is the central focus, with its jaw open. A basket to the left contains numerous small, light-colored bones. To the right, a large, textured bone is shown in a dark tray. The background features a white lace tablecloth with a pattern of small holes. A small basket of red berries is visible in the upper right corner. The overall scene is a detailed study of osteology.

Anatomy

OSTEOLOGY

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Osteology

- Study of anatomical structures (bone, cartilages) and the skeleton which formed by these structure.
- **Bones of thoracic limb include:**
 - Scapula
 - Humerus
 - Radius and Ulna
 - Carpal bones
 - Metacarpal bones
 - Phalanges.
 - No. of sesamoid bones

Bones of pelvic limb include:

- Os coxae
- Femur and patella
- Tibia and fibula
- Tarsal bones
- Metatarsal bones
- Phalanges
- No. of sesamoid bones

■ Notes:

- A numerical variation is present in same species, like the tarsus of the horse may consist of six or seven also carpus may be seven or eight.

Skeleton :

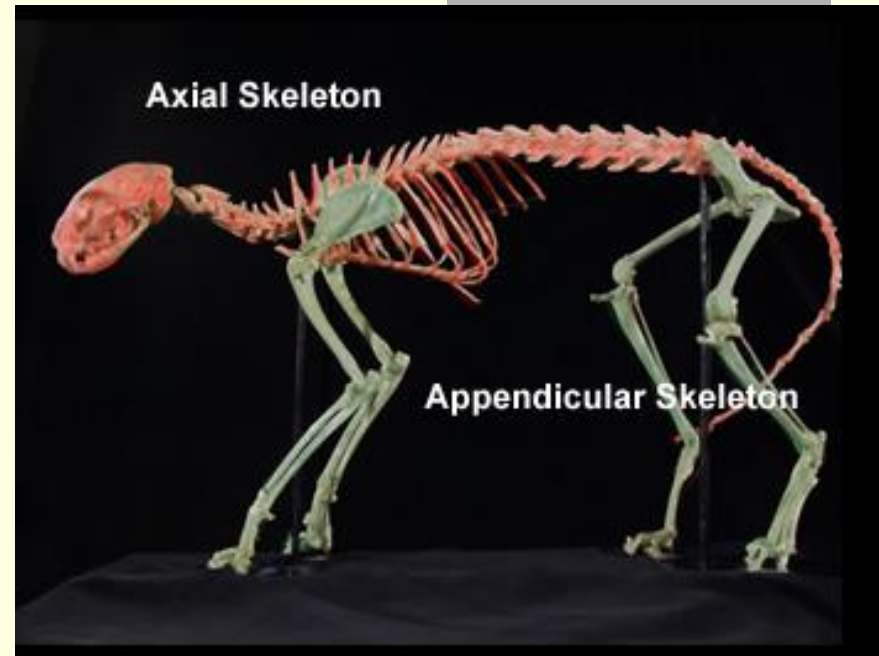
Is applied to the framework of hard structures which supports and protects the soft tissues or organs of animals .Its consist of many bones and cartilages which articulates each other to give the form of body .

The skeleton is divided into the axial skeleton , appendicular skeleton and the visceral skeleton .

***1 - Axial skeleton:** consisting of the skull , hyoid apparatus' ,vertebral column and thorax .*

***2 – Appendicular skeleton:** the bone of the limbs and the bones connecting the limbs to the axial skeleton (limb girdles) .*

***3 – Visceral skeleton** (splanchnic skeleton): consist of bones that develop in the viscera or soft structures such as the os penis in carnivores, ossa cardis in the ox and sheep, os phrenic in camel, .*



■ **Classification of bones**

- **Long bones:** Long, hollow, cylindrical. Weight bearing, have shaft and extremities, e.g. Femur, Humerus.
- **Short bones:** Short, partially smooth surfaced, mainly found in joints, help in mobility, mainly spongy substances and thin layer of cortical bone. E.g. Carpal bones.
- **Flat bones:** Flat, irregular bony plates, enclose cavities, have two plates of compact bone and in-between spongy bone, e.g. scapula, skull etc.
- **Irregular bones:** Small, rough, irregular surface mainly in midline of skeleton, have projections for muscular attachments. E.g. Vertebrae.
- **Pneumatic bones:** Long bones of birds having air cavities, e.g. Humerus.
- **Sesamoid bones:** Sesame (seed in Greek), small, develop within tendon and help to reduce friction. E.g. Patella.
- **Visceral bones:** Found in visceral organs. E.g. Os penis in dog, or cordis in ox, os opticus in fowl, os pharyngeum in camel.

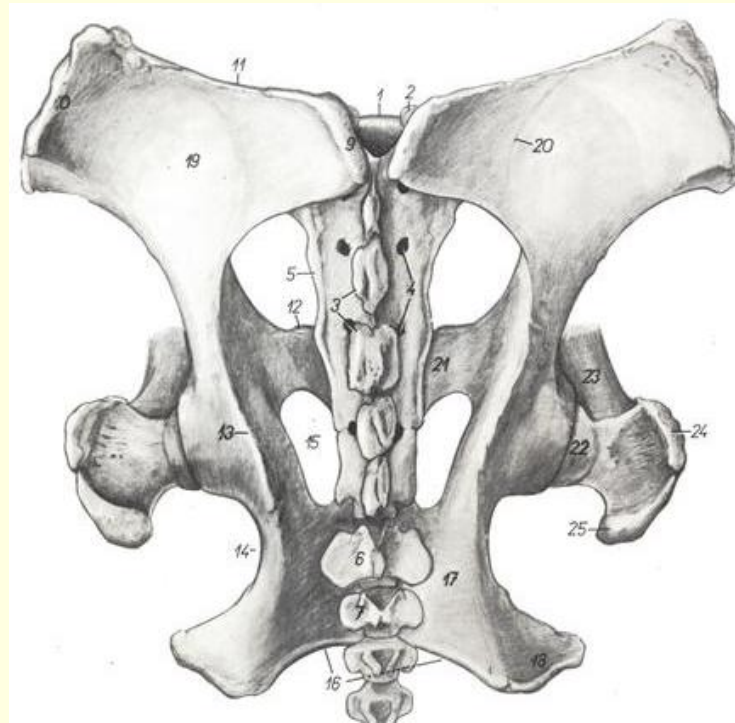
Classes of the bones:

There are seven classes of bone according to their shape and function .

*1 – **Long bones** : expanded in one direction consisting of the cylindrical part called the shaft or body (diaphysis) which enclosed the medularly cavity and marrow , and two extremities (epiphyses) or ends ,, these type of bone found present in limbs e. g. femur ,humerus , ---etc .*



2 – **Flat bones:** expanded into two directions, it furnished sufficient area for attachment of muscles like scapula or to protect soft organ in skull



3 – *Short bone*: such as these of the carpus and tarsus, somewhat similar dimensions in the length and thickness , the chief function is diffusing concussion and allow the movement of joint .

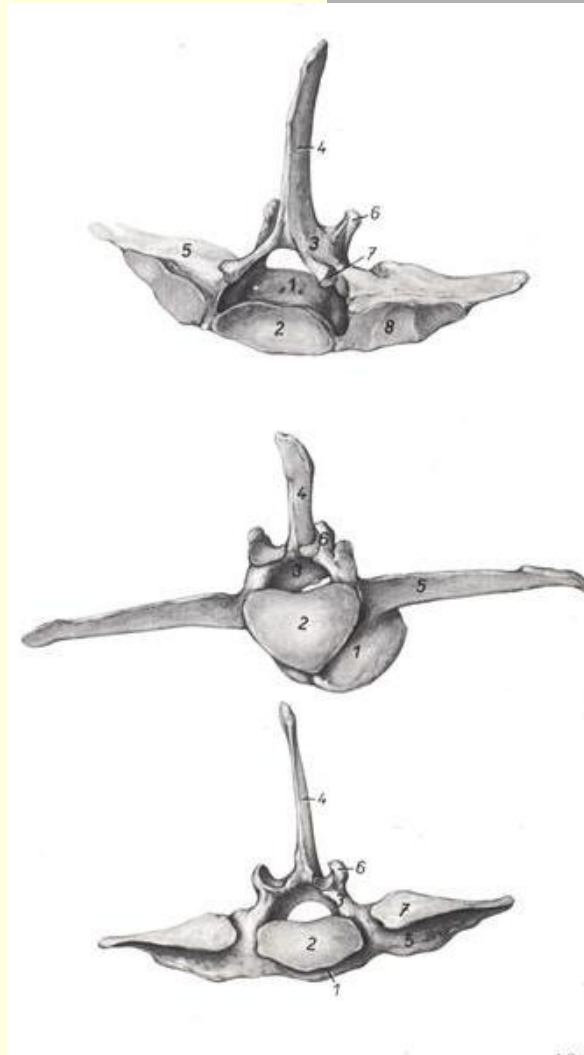
*** Sesamoid bones* :are also short bones which are developed in capsules of some joints or in tendons , they diminish friction or change the direction of the tendon .



4 – *Irregular bones* :

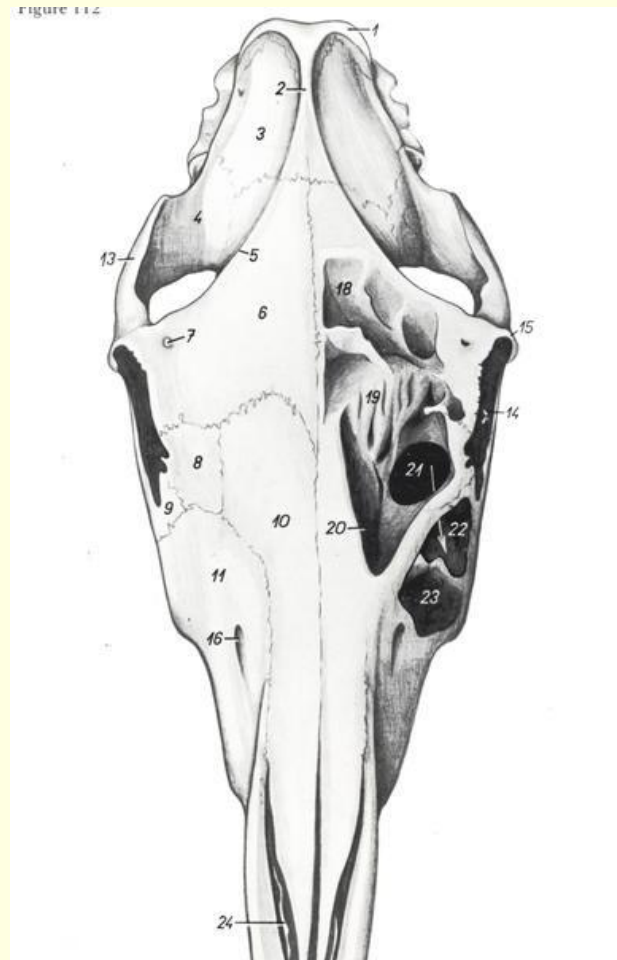
they are irregular shapes , such as vertebrae and bones of base of skull .

They are median in position .



5-Pneumatic bone:

These bones have formed through the subsequent resorption of bone substance and are lined with mucosa, ex maxilla or ethmid bone., some bone of bird.



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- **6-Visceral bones:** Found in visceral organs. E.g. Os penis in dog, or cordis in ox, os opticus in fowl, os pharyngum in camel, os nostril in the nostril; of pig.

Function of bone:

- Supporting & Protection: the bone serve as a frame work to muscles attachment also protect soft organs and viscera e.x: lung, heart, brain, spinal cord
- Hematopoitic: the bone contain marrow in the cavity which responsible for blood cells and platelet formation.
- Storage of minerals(Ca , p)

Structure of b

