

# Vertebral Column

Is composed of a series of unpaired bones ,the number of which varies between domestic mammals . The name of vertebrae different according to the regions like ( **Cervical, Thoracic, Lumber, Sacral and Caudal or coccygeal** ) , the vertebrae have different function and individual characteristic , the vertebrae are classified to the irregular bones, each vertebrae consist of

## 1. Body

## 2. Arch

## 3. Processes

### 1- Cervical Vertebrae

The first ( **Atlas**) and second ( **Axis**) cervical are **highly modified** to allow free movement of the head. The atlas apparently processes **no body**, but consist of lateral mass. An expanded transverse process project laterally and contain wing, vertebral foramen of atlas open in craniodorsal part of the vertebral column, the transverse foramen pass through the caudal part of wing.

The second ( **Axis**) constitute around the atlas and thus the head rotates, its cylindrical body ( **dens** ) .

### 2- Thoracic Vertebrae

Composed of chain of thoracic vertebrae. The thoracic vertebrae articulate with ribs , all thoracic vertebrae show common features

- Short body with flattened extremities
- Short articular process
- Vertebral arch
- Spinous process
- Costal facet

### 3- Lumbar Vertebrae

Is different from thoracic vertebrae in longer to their bodies. The costal facet are absent , the spinous process are shorter , the transverse process long ,flattened and project laterally which the spinous process , expanded transverse process is the characteristic feature of lumbar vertebrae .

### 4- Sacral Vertebrae

The sacral vertebrae are ossified intervertebral disc are firmly fused forming single bone the sacrum in all domestic species . The fusion of single element completed by 1.5 year of age in carnivorous and pig, 3-4 years in ruminant, 4-5 years in horse . The ossification of the vertebrae articulation in loss flexibility of sacral vertebral column .

### 5- Caudal or coccygeal

First to last, they also show progressive simplification in their form by losing characterize vertebral features such as arches and process.

Vertebrae	Carnivorous	Pig	Ox	Small ruminant	Horse
Cervical	7	7	7	7	7
Thoracic	12-14	13-16	13	13	18
Lumbar	(6) 7	5-7	6	6	5-7
Sacral	3	4	5	(3) 4-5	5
Caudal or coccygeal	20-23	20-23	18-20	13-14	15-21

## **Ribs**

The ribs form the skeleton of lateral thoracic wall, they are arranged serially in pairs, each rib consist of bony dorsal part (costal) and costal cartilage. The ribs consist of ;

- Head
- Neck
- Tubercle
- Body or shaft
- Sternal Extremity

## **Sternum**

Composed of unpaired segmental series of bone which joined together by intersternal cartilage .individual segment fuse with ossification intersternal cartilage in older animals ins divide to

- **Manubrium sterni**
- **Body**
- **Xiphoid process**