



## 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	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