

The structure of the vertebrae varies from one segment of the spinal column to the next, reflecting specific static and functional requirements.

Although the vertebral body, vertebral arch, vertebral foramen and the positions of the vertebral joint surfaces (or articular processes) differ in the three spinal column segments, certain essential structures are found in all vertebrae.

The base plates and upper plates of the cervical vertebrae are small and rectangular, the vertebral foramen has a large, triangular cross-section and the spinous processes are positioned horizontally.

- Cervical vertebra



The base plates and upper plates of the thoracic vertebrae are triangular, with a more rectangular structure, the vertebral foramen has a round cross-section and the spinous processes point steeply downward.

- Thoracic vertebra



The base plates and upper plates of the lumbar vertebrae are large and bean-shaped, the vertebral foramen has a small, triangular cross-section and the thick spinous processes are positioned horizontally.

• Lumbar vertebra



The varying requirements with regards to mobility and load bearing capacity have resulted in different vertebral forms. However, the cervical, thoracic and lumbar vertebrae still show structures common to all vertebral bodies.

The vertebra consists of a hard external bony layer, the compacta, and the spongy inner bone substance, the spongiosa.

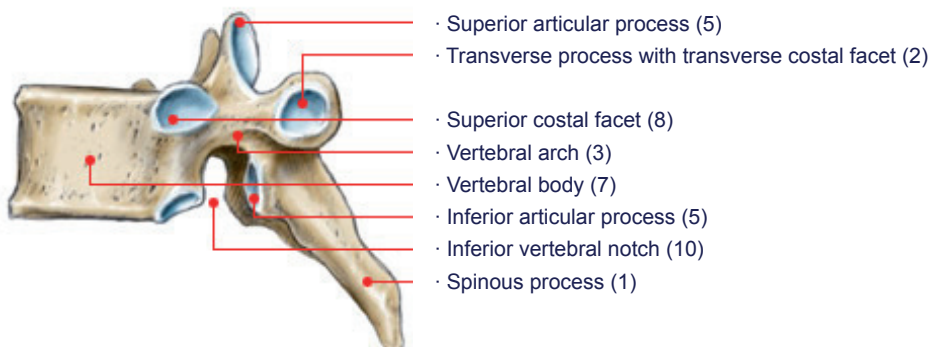
The arch located at the rear (dorsal) (3), the two transverse processes (2) and the spinous process (1) together with the pedicle (4) and the articular processes (5) form the posterior element that, with all its parts, provides important points of attachment for back muscles and represents a major element of mobility. The vertebral body (7) is at the front or ventral (towards the abdominal or thoracic cavity) and, together with the intervertebral discs, fulfils the main function of the load bearing column.

The vertebral foramen (6) lies between the vertebral body and the vertebral arch. Taken together, all of the vertebral foramina line up to form the spinal (or vertebral) canal (canalis vertebralis), which contains and protects the spinal cord with its emerging nerves.

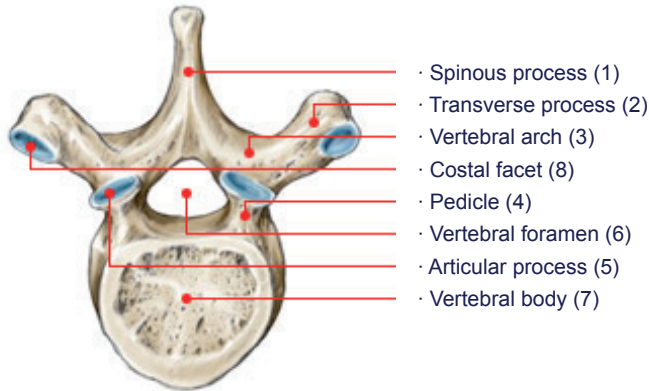
The intervertebral foramina (9) on both sides of the vertebral body are formed by the inferior vertebral notch (10) and the superior vertebral notch (11). A spinal nerve from the spinal cord emerges through each of these openings along with several blood vessels.

The thoracic vertebral bodies feature the superior costal facets (8), to which the ribs are attached.

• Thoracic vertebra, side view

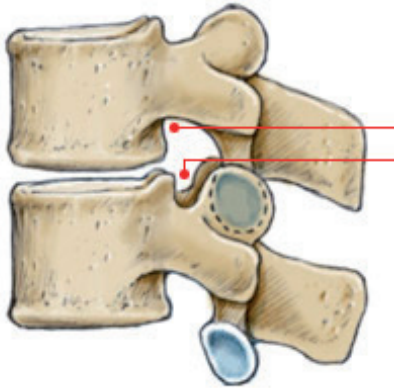


• Thoracic vertebra, view from above



- Spinous process (1)
- Transverse process (2)
- Vertebral arch (3)
- Costal facet (8)
- Pedicle (4)
- Vertebral foramen (6)
- Articular process (5)
- Vertebral body (7)

• Vertebral segment, side view



- Intervertebral foramen (9) with:
- Inferior vertebral notch (incisura vertebralis inferior) (10)
- Superior vertebral notch (incisura vertebralis superior) (11)

Latin terms for the anatomical structures of the vertebra:

- Spinous process, processus spinosus (1)
- Transverse process, processus transversus (2)
- Vertebral arch, arcus vertebrae (3)
- Pedicle, pediculus arcus vertebrae (4)
- Articular process, processus articulares (5)
- Vertebral foramen, foramen vertebrale (6)
- Vertebral body, corpus vertebrae (7)
- Costal facet, fovea costales (8)
- Intervertebral foramen, foramen intervertebralis (9)
- Inferior vertebral notch, incisura vertebralis inferior (10)
- Superior vertebral notch, incisura vertebralis superior (11)