



Anatomy I Lab. 4

(UOMU013033)

1st term

“Vertebral Column”

Al-Mustaql University College of Engineering
Department of prosthetics and orthotics engineering
Second Stage

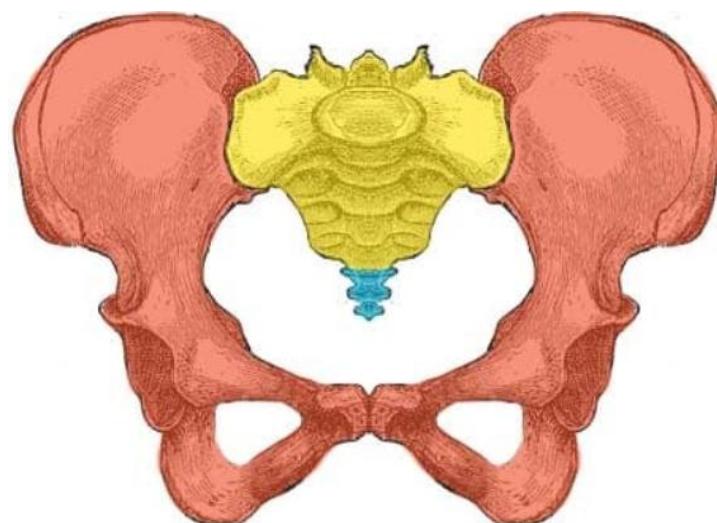
By:
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Vertebral column (spine)

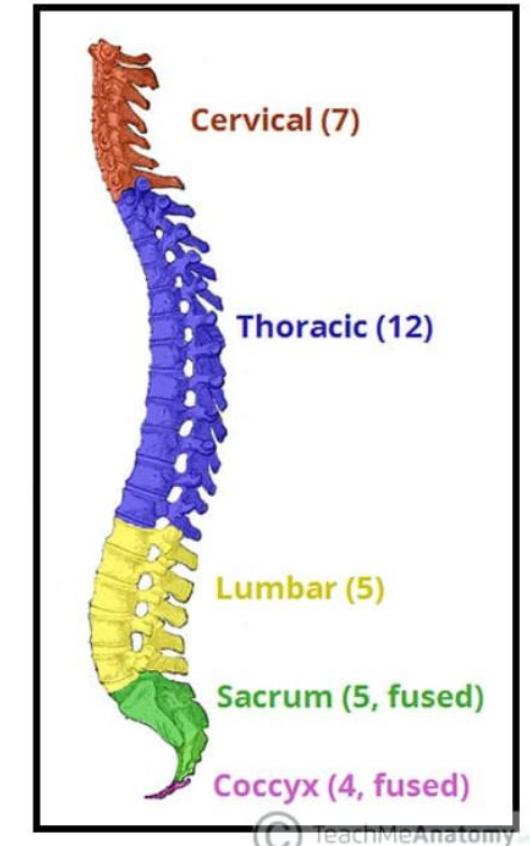
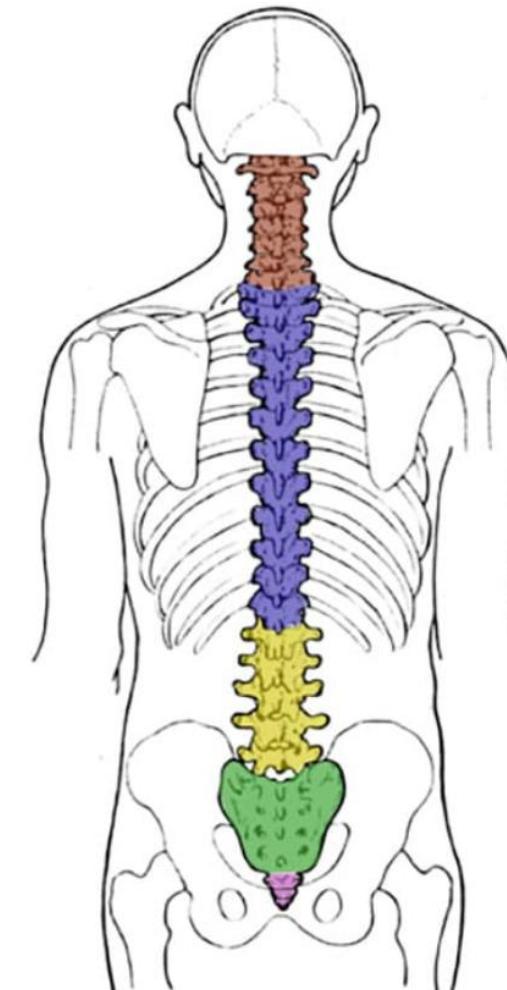
The **vertebral column** is a series of approximately **33 bones**

called vertebrae, which are separated by intervertebral discs.

The column can be divided into **five** different regions, with each region characterised by a different **vertebral structure**.



- Hip bones
- Sacrum
- Coccyx



Functions

The vertebral column has four main functions:

- **Protection** – encloses and protects the spinal cord within the spinal canal.
- **Support** – carries the weight of the body above the pelvis.
- **Axis** – forms the central axis of the body.
- **Movement** – has roles in both posture and movement.



Structure of a Vertebra

All vertebrae share a basic **common structure**. They each consist of

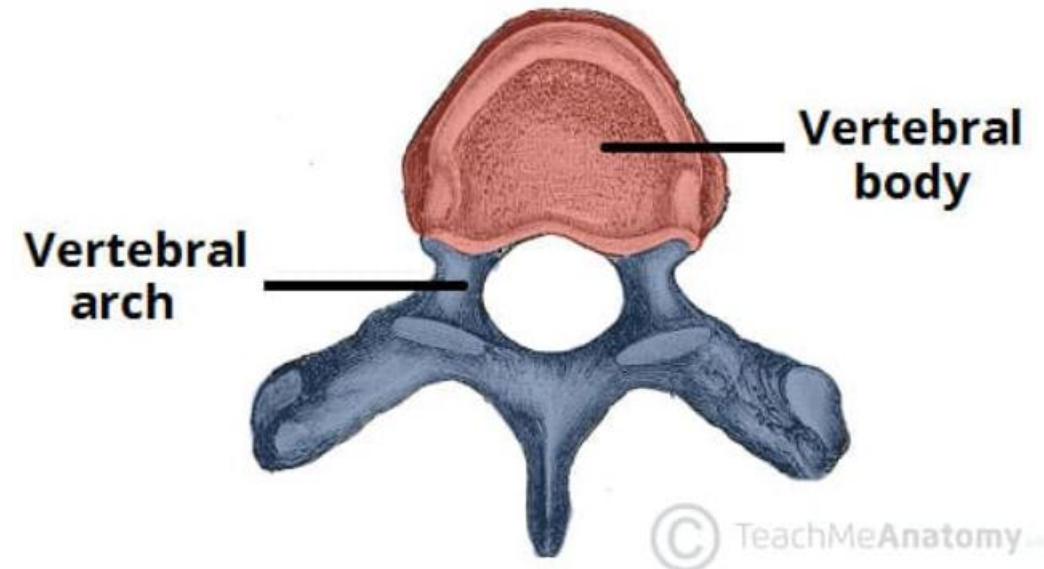
- an anterior vertebral body
- a posterior vertebral arch.

Vertebral Body

The vertebral body forms the **anterior** part of each vertebra.

It is the **weight-bearing** component, and vertebrae in the lower portion of the column have larger bodies than those in the upper portion (to support the increased weight better).

The superior and inferior aspects of the vertebral body are lined with **hyaline cartilage**. A fibrocartilaginous intervertebral disc separates adjacent vertebral bodies.

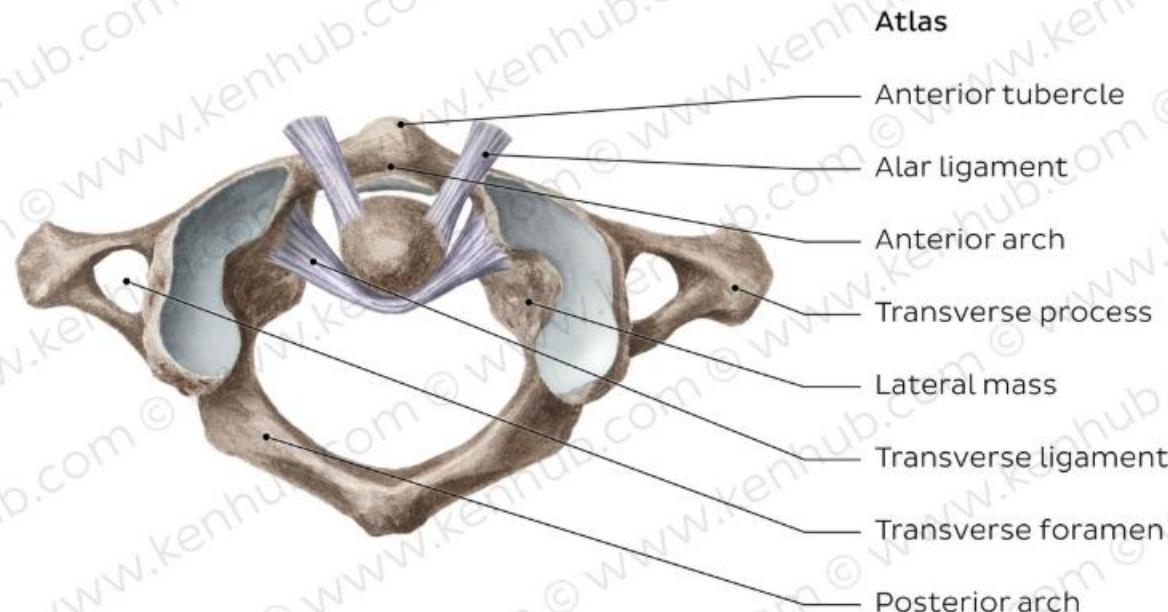


The general structure of a vertebra.

Vertebral Arch

The vertebral arch forms the **lateral** and **posterior** aspect of each vertebra.

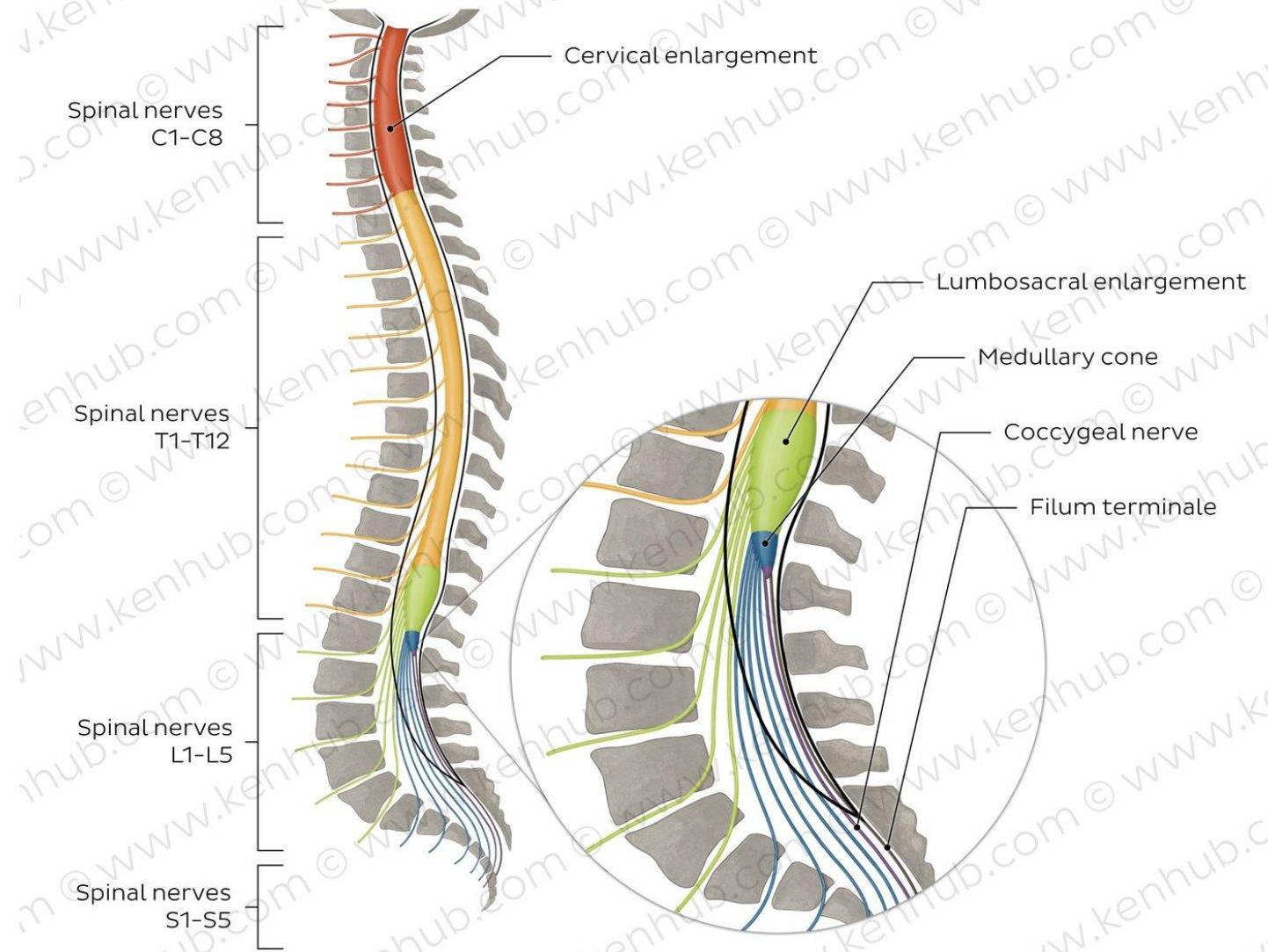
In combination with the vertebral body, the vertebral arch forms an enclosed hole – the **vertebral foramen**. The foramina of all the vertebrae line up to form the **vertebral canal**, which encloses the spinal cord.



The intervertebral disc is a **fibrocartilaginous** cylinder that lies between the vertebrae, joining them together. They permit the flexibility of the spine and act as shock absorbers. In the lumbar and thoracic regions, they are wedge-shaped, supporting the curvature of the spine.



Spinal nerves



Spine curvature and movements

The spine is capable of the following movements:

- flexion (bending forward),
- extension (bending backwards),
- lateral flexion (right/left),
- lateral extension (returning to normal from lateral flexion),
- rotation (twisting).

