

# **Axial Skeletal System**

*The axial skeleton is made of 80 bones located towards the center of the body and is the principal supportive structure of the body. The primary regions that make up the axial skeleton are the bones of the skull, the vertebral column, and the thorax.*

## **Skull**

The bones of the skull include both the cranium and the facial bones. These bones protect and support the brain, eyes, ears, and nose among others. They also provide attachment sites for the muscles that help us to chew, see, and talk.

## The Vertebral Column

The vertebral column, or spine, includes 26 bones that support the head, abdomen, and upper body. It is also the housing and protection for the spinal cord and creates openings for the nerves to branch out into the body. The vertebral column consists of 5 areas.

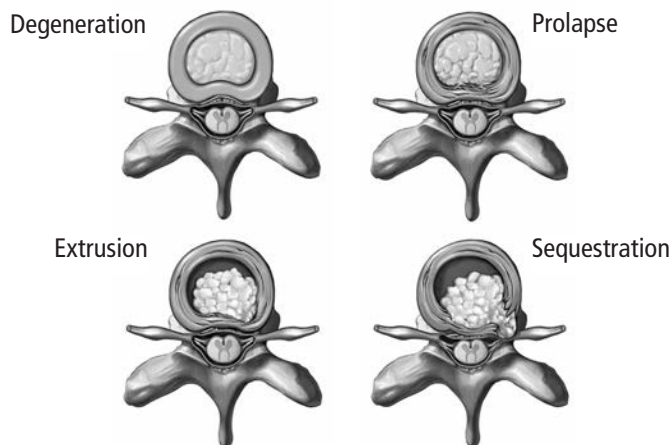
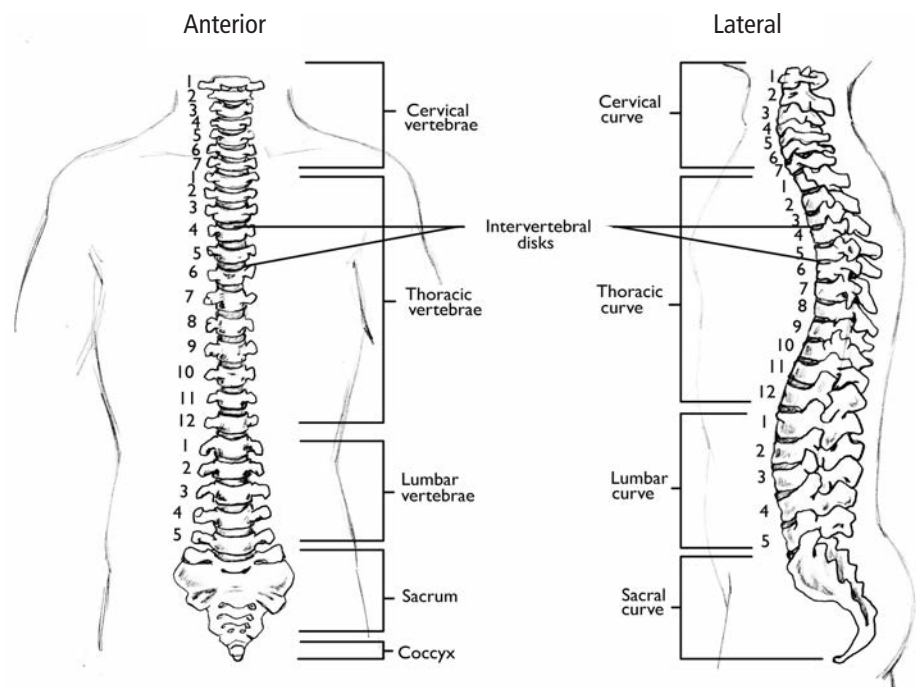
The **cervical spine** has 7 bones that support the head and neck. The atlas and axis (C1 and C2) support the skull and provide the majority of the rotation for the neck. The cervical spine should have a lordotic, or inward curve.

The **thoracic spine** is made up of 12 vertebrae and provides the attachment sites for the ribs. The thoracic spine has a large outward curve, called kyphosis. There is little movement in the thoracic region when compared to the cervical and lumbar areas.

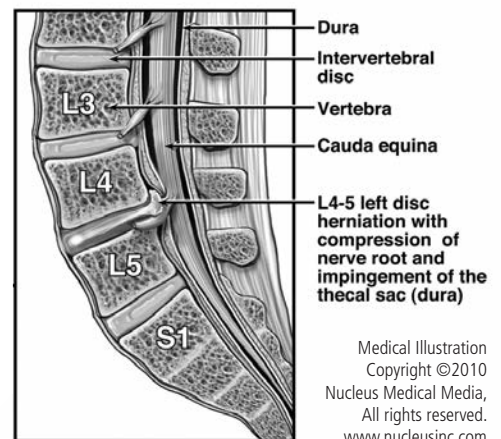
The **lumbar spine** has 5 large vertebrae that absorb much of the load of the spine. The lumbar curve is a lordotic or inward curve. The lumbar area allows for significant bending and twisting motions.

The **sacrum** and **coccyx** are the last two sections of the vertebral spine. The sacrum is one bone made up of 5 fused vertebrae. It disperses body weight into the hips. The sacrum has a kyphotic curve. The coccyx, tail bone, is made up of 2 to 4 small, fused segments. It provides attachment sites for muscles and ligaments of pelvic floor.

In between each of the vertebrae are intervertebral discs. These discs are made up of cartilage and allow shock absorption and flexibility of the spine. Occasionally these discs will become herniated, or bulge out of shape. There are four stages of disc herniations: (1) disc protrusion (2) prolapsed disc (3) disc extrusion (4) sequestered disc.



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Sagittal view of the lumbosacral spine

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## Chapter 6

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While the shapes of the vertebrae vary slightly in each region, the overall structures are similar throughout the spine. Vertebrae are made up of a body, transverse processes, spinal process, lamina, pedicle, and articular processes.

### **Thoracic Cage (Thorax)**

The thoracic cage is made up of the sternum and ribs. It is the protective cage of the heart and lungs. The sternum, or breastbone, is made up of the manubrium, body, and xiphoid process. There are 12 sets of ribs. The first 7 are true ribs and link to the sternum and spine. The last 5 are called false ribs because they do not attach to the sternum.