

The intervertebral discs lie between the adjacent superior and inferior surfaces of the vertebral bodies from C2 to S1, and are similar in shape to the bodies. In **cervical** and **lumbar** regions, discs are thicker anteriorly as is the body of the fifth lumbar vertebra, and these contribute to the normal lumbar lordosis. In the thoracic region each is of uniform thickness.

The discs contribute 20-25% of the length of the vertebral column. Each disc comprises of an 'inner nucleus pulposus', an outer 'annulus fibrosus' and limiting cartilage end-plates. The annulus and end-plates anchor the disc to the vertebral body. Apart from the outer few lamellae, the disc is avascular and aneural gaining its nutrition by diffusion from the adjacent vertebral body.

The **nucleus pulposus**, which is better developed in the cervical and lumbar regions is a soft hydrophilic central region with a three dimensional lattice of collagen fibers. It surrounds large extra-fibrillar spaces and contains glycosaminoglycans to enable it to retain fluid. Its water content decreases with age; initially it contains gelatinous material, which over the years is gradually replaced by fibrocartilage leading to changes in the mechanical behavior of the disc. During growth the nucleus increases in size at the expense of the inner lamellae of the annulus.

The annulus fibrosus is a series of 15-20 laminae, each of which is composed of obliquely arranged collagen bundles whose obliquity alternates between adjacent laminae; the obliquity is greatest in the inner lamellae. Postero-laterally the lamellae are less well organized. The annulus increases in size by the addition of new lamellae at the periphery. Some elastic fibers are also present.

Cartilage end-plates consist of a hyaline cartilage covering on each surface of the vertebral body; this is the anatomical limit of the disc.

The **posterior aspect** of the disc forms part of the anterior wall of the vertebral foramen. As the spinal nerves pass through the intervertebral foramina, they lie directly behind the disc. Posterior bulging of the disc may compress the spinal cord as well as individual nerve roots.