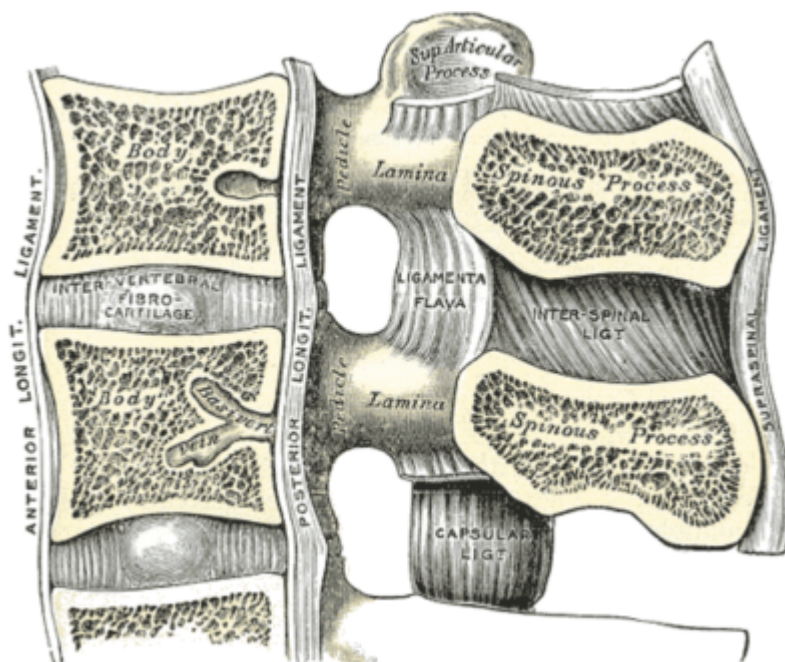


## Posterior longitudinal ligament

see [Cervical posterior longitudinal ligament](#).



The posterior longitudinal ligament is situated within the [vertebral canal](#), and extends along the posterior surfaces of the bodies of the [vertebra](#), from the body of the [axis](#), where it is continuous with the [membrana tectoria](#), to the [sacrum](#).

It is broader above than below, and thicker in the thoracic than in the cervical and lumbar regions. The ligament is more narrow at the vertebral bodies and wider at the intervertebral disc space which is more pronounced than the anterior longitudinal ligament. This is significant in understanding certain pathological conditions of the spine such as the typical location for a spinal disc herniation.

In the situation of the intervertebral fibrocartilages and contiguous margins of the vertebræ, where the ligament is more intimately adherent, it is broad, and in the thoracic and lumbar regions presents a series of dentations with intervening concave margins; but it is narrow and thick over the centers of the bodies, from which it is separated by the basivertebral veins.

This ligament is composed of smooth, shining, longitudinal fibers, denser and more compact than those of the anterior ligament, and consists of superficial layers occupying the interval between three or four vertebræ, and deeper layers which extend between adjacent vertebræ.

It functions to prevent [hyperflexion](#) of the vertebral column.

The size of PLL diminished significantly as the disc level became lower ( $P < 0.00001$ ), and there are loose attachment of the central area of rhomboidal expansion of PLL. In the upper lumbar region, central or central-lateral herniation with an intact PLL was predominant. The type of disc herniation appeared to be influenced by the width and development of the PLL with a loosely connected central area. In the lower lumbar region, posterior-lateral extrusion with a ruptured PLL was predominant. This may be related to the small or poorly developed PLL in lower lumbar/lumbosacral region. It is suggested that the type of disc herniation (PLL intact or ruptured) is related to the morphologic variation of PLL <sup>1)</sup>.

The lumbar [intervertebral discs](#) are supplied by a variety of nerves. The posterior aspects of the discs and the [posterior longitudinal ligament](#) are innervated by the [sinuvertebral nerves](#).

see [Ossification of the posterior longitudinal ligament](#)

Patients who suffer from [disc protrusion](#) will experience more back pain and less radicular pain as a result of stretching of the [posterior longitudinal ligament](#).

The attachment of the [posterior longitudinal ligament](#) to the [dura mater](#) is poorly understood. Anterior dural ligaments connect the anterior dura to the deep layer of the posterior longitudinal ligament, but appear to be limited to the [lumbar region](#) and have been observed to have a craniocaudal orientation. Their function is reported to help in supporting and protecting the [dural sac](#) and [spinal cord](#).

The spinal canal was opened exposing the dural sac, the spinal nerve roots incised, and spinal cord removed to mobilize the dural sac and gain access to Hofmann ligaments. The extent, orientation, length, and level of origin and insertion of the ligaments were documented.

The orientation of the ligaments changed from caudocranial (dura to posterior longitudinal ligament) at upper thoracic levels to transverse at the level of T8-T9 to craniocaudal at lower thoracic and lumbar levels, often with multiple ligaments being present at a single level. Ligament length varied from 0.5 to 28.8 mm and was positively correlated with vertebral level and negatively correlated with orientation.

Hofmann ligaments are present at most levels between C7 and L5; although most ligaments were limited to a single vertebral segment, some were observed to cross several segments <sup>2)</sup>.

<sup>1)</sup>  
Ohshima H, Hirano N, Osada R, Matsui H, Tsuji H. Morphologic variation of lumbar posterior longitudinal ligament and the modality of disc herniation. Spine (Phila Pa 1976). 1993 Dec;18(16):2408-11. PubMed PMID: 8303441.

<sup>2)</sup>  
Wadhvani S, Loughenbury P, Soames R. The anterior dural (Hofmann) ligaments. Spine (Phila Pa 1976). 2004 Mar 15;29(6):623-7. PubMed PMID: 15014271.

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