Previous studies have demonstrated that the length of the lumbar spine is decreasing with age. Despite considerable research based on sagittal measurements, little is known about the changes in the volume of vertebrae. The objective of a study of Miękisiak et al. from Opole, Lublin, Wrocław, Poland. was to evaluate the changes in the volume of either column of the spine with age.

Computed tomography scans of 62 asymptomatic subjects, performed for thoracolumbar trauma evaluation were used to create virtual 3D models. At least 10 patients were assigned to every decade of life from third to eight. They used a novel technique to measure the volume of anterior column (AC) and posterior column (PC) per each segment (a total of 310 segments). Midline sagittal images were used to measure disc height (DH) and vertebral body height (VH).

With age, both DH increases, whereas the VH decreases. The overall length of lumbar segment of the spine decreases with age. The volumetric measurements performed on same subjects showed that volume of both AC and PC does not change with age in females. In males, there is a weak but statistically significant correlation between AC volume and age and no change in the volume of PC. The ratio of PC:AC volume does not change with age in women, although it decreases slightly but significantly (in favor of AC) with age in males.

The overall length of lumbar spine decreases with age. This process is not a result of mere changes in the volume of either AC or PC [1].

Nerve root compression was evident in twenty-one of the 100 foramina, in eight of the ten foramina in which the posterior disc height was four millimeters or less, and in four of the five foramina in which the foraminal height was fifteen millimeters or less. These critical dimensions may be indicators of lumbar foraminal stenosis. However, compression of a spinal nerve root does not always cause sciatica, and the clinical findings must always be taken into account when a diagnosis of stenosis is considered [2].

1)
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2)
Hasegawa T, An HS, Haughton VM, Nowicki BH. Lumbar foraminal stenosis: critical heights of the intervertebral discs and foramina. A cryomicrotome study in cadavera. J Bone Joint Surg Am. 1995 Jan;77(1):32-8. PubMed PMID: 7822353.