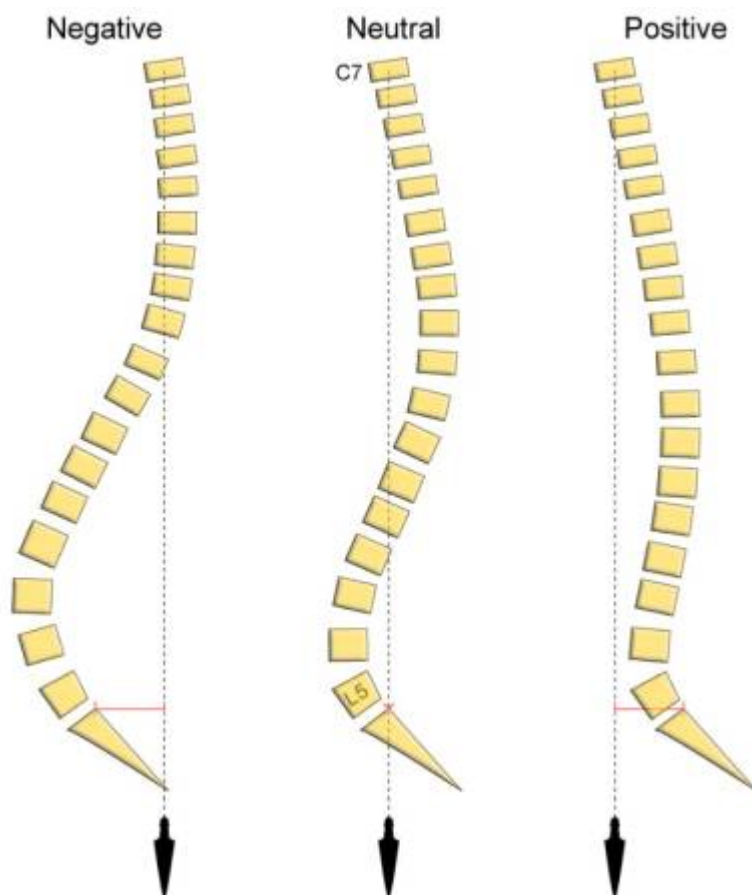


# Sagittal plane imbalance

[Sagittal plane imbalance](#) defined as radiographic sagittal imbalance of  $>5\text{cm}$

<sup>1)</sup>



Imbalance of the spine in the sagittal plane is an important factor for clinical symptoms, degenerative disease and perioperative care <sup>2)</sup>.

## Etiology

Disruption of the normal [sagittal alignment](#) can occur due to one of several conditions:

Post-traumatic kyphosis, degenerative disc disease, or after spinal fusion.

[Adult spinal deformity](#) encompasses [scoliosis](#) and [sagittal imbalance](#).

If the lumbar lordosis is insufficient (“flatback”) the patient’s center of gravity is shifted forward relative to the hips and pelvis. The result is that, to stand upright, the patient must contract his or her back muscles, and possibly flex at the hips and knees. While these compensating maneuvers may help to normalize posture temporarily, over time severe back pain can result. Once the process begins patients often notice that the problem is progressive and they feel more and more “bent over” over time.

More information about the association between preoperative anterior translation of the [C7 plumb line](#) and clinical outcomes after decompression surgery in patients with [lumbar spinal canal stenosis](#) (LSS) would help resolve problems for patients with sagittal imbalance.

Sagittal balance restoration has been shown to be an important determinant of outcomes in corrective surgery for degenerative [scoliosis](#). [Lateral interbody fusion](#) (LIF) is a less-invasive technique which permits the placement of a high lordosis interbody cage without risks associated with traditional anterior or transforaminal interbody techniques. Studies have shown improvement in lumbar lordosis following LIF, but only one other study has assessed sagittal balance in this population.

[1\)](#) [2\)](#)  
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Ferrara LA. The biomechanics of cervical spondylosis. Adv Orthop. 2012;2012:493605.

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