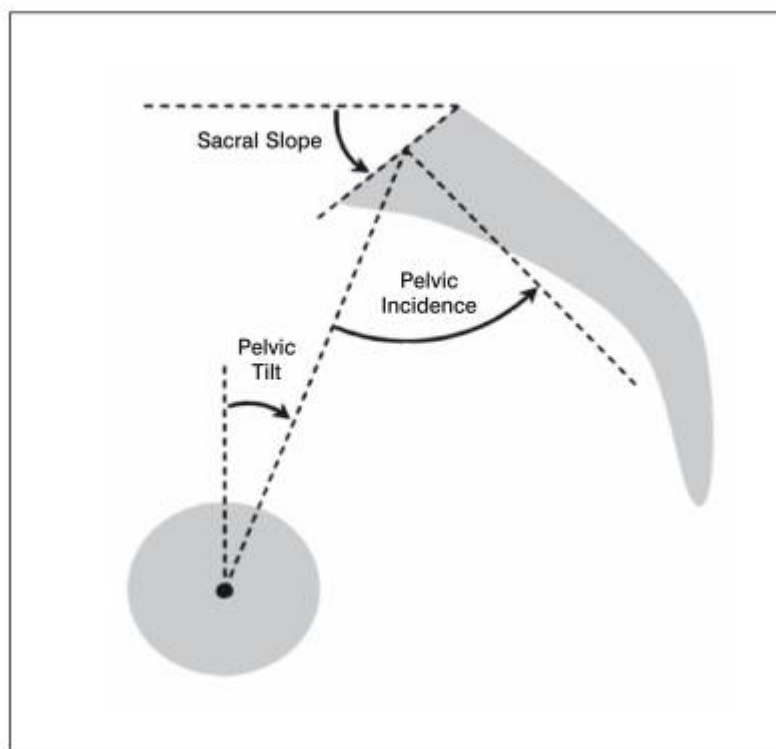


Pelvic incidence (PI)



In most instances, [sagittal imbalance](#) is due to a shortfall of [lumbar lordosis](#) (LL) relative to the pelvic incidence (PI) (i.e. LL is more than 9° below PI), which is designated as [flatback syndrome](#).

The angle between the perpendicular to the sacral plate at its midpoint and the line connecting this point to the middle axis of the [femoral heads](#).

Normal = 50 °

Alignement objective:

$LL = PI \pm 9^\circ$

PI is fixed once skeletal maturity is reached.

For ease of measurement, $PI = 90^\circ - \theta$

see:

[Sacral slope](#)

[Pelvic tilt](#)

[Overhang of S1](#)

The pelvic incidence appears to be the main axis of the [sagittal balance](#) of the spine. It controls [spinal curvature](#) in accordance with the adaptability of the other parameters ¹⁾.

Patients with smaller pelvic incidence tended to be restored higher, and those patients with a larger pelvic incidence were more likely to be restored lower. For patients with normal [sagittal balance](#), the surgical outcomes in the treatment of low-grade [lumbar degenerative spondylolisthesis](#) with spinal fusion are not correlated with restoration of the lumbar Lordosis ²⁾.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2200735/>

The PI does not change after adolescence, and it directly influences pelvic alignment, including the parameters of pelvic tilt (PT) and sacral slope (SS) ($PI = PT + SS$), [corrected] overall sagittal spinal balance, and lumbar lordosis.

In the setting of an elevated PI, the spine adapts with increased lumbar lordosis. To prevent or limit sagittal imbalance, the spine may also compensate with increased PT or pelvic retroversion to attempt to maintain an upright posture.

¹⁾

Legaye J, Duval-Beaupère G, Hecquet J, Marty C. Pelvic incidence: a fundamental pelvic parameter for three-dimensional regulation of spinal sagittal curves. Eur Spine J. 1998;7(2):99-103. PubMed PMID: 9629932; PubMed Central PMCID: PMC3611230.

²⁾

Hsu HT, Yang SS, Chen TY. The Correlation between Restoration of Lumbar Lordosis and Surgical Outcome in the Treatment of Low-grade Lumbar Degenerative Spondylolisthesis with Spinal Fusion. J Spinal Disord Tech. 2013 Dec 11. [Epub ahead of print] PubMed PMID: 24335721.

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