SciMedCentral

Annals of Sports Medicine and Research

Commentary

Commentary on: The Effect of L5-S1 Fusion on Global Spine Motion: A Range of Motion Analysis Comparing 2-Level TDR versus Hybrid at L4-S1 in 235 Patients

Thierry Marnay*

Montpellier Spinal Surgery Center, Parc Clinic 34170 Castelnau Le Lez, France

***Corresponding author**
Thierry Marnay, Montpellier Spinal Surgery Center, Parc Clinic 34170 Castelnau Le Lez, France

Submitted: 04 June 2025

Accepted: 09 September 2025

Published: 10 September 2025

ISSN: 2379-0571

Keywords
- Lumbar Spine
- Lumbar Disc Arthroplasty
- Lumbar Total Disc Replacement
- Lumbar Fusion
- Hybrid Construct
- Spinal Motion

The original goal of this paper was to explore the consequences of L5-S1 fusion on lumbar spine motion and identify the consequences of a hybrid construct, versus a two-level disc replacement, necessitated in some cases, when only one TDR implant was reimbursed. The common transmitted knowledge about 1 level fusion was there were no consequences because the pelvic motion below and the disc above would compensate for the disc level immobilization. The fight to preserve L5-S1 mobility was challenged by many: "no natural mobility at L5-S1", "a lot of people live with a sacralization", "we fused a lot of L5-S1, especially in isthmic spondylolisthesis without consequences" ...I was even invited to a conference, "do we really need to save Private L5-S1?" Beyond the doubts that come with so many preconceived ideas, there was a necessity to explore this part of our field. As we then noticed in the results, nothing fits with those academic affirmations. The participation of the pelvis, never measured before, and the global spine motion effectiveness are in contradiction with "compensation theory". To demonstrate this point, we described two New Angles: the "pelvic range of motion", (pelvic ROM) which is defined by the angle between sacral slope in extension and sacral slope in flexion, and the "L1 race", the angle drawn between L1 in extension and L1 in flexion. In the article, those measures demonstrate the real difference between 2-level TDR and Hybrid with TDR in L4-L5 and Fusion L5-S1. This completely debunks the preconceived idea of pelvic and lumbar compensations when fusion is performed. That should encourage operators to use a 2-level TDR in L4-S1and insurance to promote the reimbursement of the 2-level total disc prostheses used there, and also reevaluate the surgical payment of this technique versus arthrodesis. To complete the study presented in this publication, we realized we needed to look at what criteria could anticipate the final motion after a Total disc replacement in L5-S1, 1-level, in a new study. The unique criteria that predict the global motion after a one level TDR in L5-S1 is its post-op mobility in flexion extension. The more mobile the operated level, the higher the pelvic motion and L1 Race. We will continue these observations to complete the new 1-level study for our next publication.

Cite this article: *Marnay T (2025) Commentary on: The Effect of L5-S1 Fusion on Global Spine Motion: A Range of Motion Analysis Comparing 2-Level TDR versus Hybrid at L4-S1 in 235 Patients. Ann Sports Med Res 12(1): 1233.*