

# PLF vs PLIF: Moving towards a gold standard in posterior lumbar spinal fusion surgery.

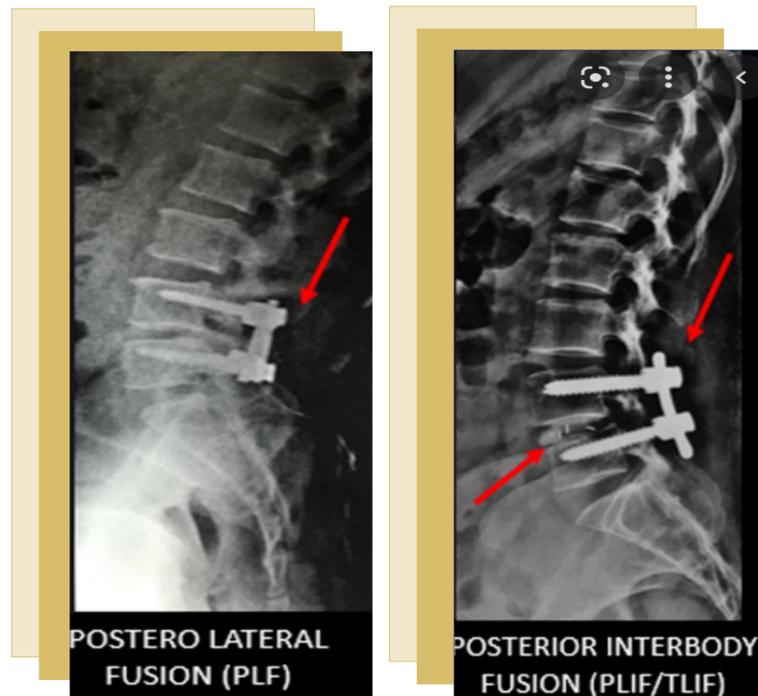


GREG MALHAM  
BSc MBChB FRACS NEUROSURGEON

EH2022-533 & EH2020-599

Monique Khasin, Gregory M Malham, Dean T Biddau

## PLF = Posterolateral Lumbar Fusion



## PLIF = Posterior Lumbar Interbody Fusion

### BACKGROUND & CONTEXT

Low back pain currently contributes an exorbitant cost to Australia's healthcare system. Where conservative and medical management is insufficient, it is pertinent that surgical techniques offer the most cost-effective and successful patient outcome. Posterolateral Fusion (PLF) and Posterior Lumbar Interbody Fusion (PLIF) are two popular options in managing spinal pathologies with the goal of long-term stabilisation [Said et al., 2022]. Of the limited literature that compares the two, outcomes are heterogeneous with minimal progress made towards adopting a gold-standard approach. PLIF operative time tends to be longer, with higher associated costs. The question remains whether the benefits of PLIF offset these factors compared to PLF alone.

### AIM

We aimed to compare clinical outcomes between patients undergoing PLF and PLIF.

### STUDY DESIGN & METHOD

Single-centre, prospective, cohort study of consecutive patients undergoing PLF (n=38) or PLIF (n=32) from January 2020 to November 2021. Patient recorded outcome measures (PROMs) included: Back VAS, Leg VAS, ODI, Physical SF-12 and Emotional SF-12. Scores were evaluated preoperatively and at 3-months, 6-months and 12-months postoperatively.

### RESULTS

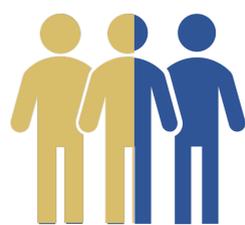
All clinical outcomes improved progressively and significantly from baseline to 12-month follow-up in both groups. A total of n=91 surgical levels were operated on: L1/2 = 1, L2/3 = 4, L3/4 = 11, L4/5 = 38, L5/S1 = 31, S1/S2 = 2. There were n=2 operations to treat fractures, n=1 from L1-L3, and n=1 from L3-L5.

There was a significant difference in PROM score at 12-months between PLF and PLIF patients when analyzing Physical SF-12, with PLIF patients demonstrating significantly improved scores (43% vs 42%, p=0.003). There was no significant difference in PROM scores between PLF and PLIF patients for: Back VAS, Leg VAS, ODI and Emotional SF-12.

## Study Cohort

### Patient Demographics

Mean age: 64±11 years  
58.6% were female  
Mean BMI: 28±4.8

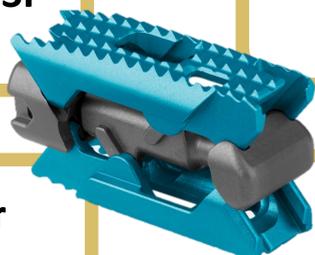


Equal in Back +  
Leg VAS, ODI,  
Emotional SF-  
12\*

Greater in  
Physical SF-  
12\*

Higher  
cost

Longer  
operation



\*Compared to PLF

### Key findings:

Both PLF and PLIF resulted in significant improvement in clinical outcome across all measures at 12-months follow-up. The only significant difference between the two was identified in Physical SF-12 at 12-months (43% vs 42%, p=0.003). These findings suggest that PLIF may not have a convincing advantage over PLF when considered in the context of cost, operative time and associated risk.