

GENERAL POSTERS

smad2 significantly blocked TGF- β suppression in ADAMTS-1 expression, but no sh-smad3. Treatment of cells with MAPK inhibitors partially abolished the suppressive effect of TGF- β on ADAMTS-1 mRNA and protein expression, suggesting involvement of these signaling pathways in the regulation of ADAMTS-1. Gain and loss of function studies confirmed the contribution of JNK1/2 and ERK1/2 to TGF- β dependent suppression of ADAMTS-1 promoter function.

CONCLUSIONS: TGF- β , through Smad2, JNK1/2 and ERK1/2, serve as a negative regulator of ADAMTS-1 expression in the NP, which can inhibit the role of ADAMTS-1 on NP

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PLIF EXPANDABLE CAGES EFFECTIVELY STABILIZE THE SPINE BETTER THAN TLIF CAGE

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INTRODUCTION: PLIF is a widely used technique in spinal fusion. Expandable cages are currently being explored in stabilizing the spine, especially as standalone device. The main objective of this study was to biomechanically evaluate expandable PLIF cages vs. a standard TLIF cage in functional spinal units (FSUs) with and without additional posterior fixation.

MATERIAL AND METHODS: Twelve ligamentous L23 and L45 FSUs were used. The potted caudal (L3/L5) end was fixed to the testing apparatus and pure moments up to 10 Nm at the cranial level were applied in extension (ext), flexion (flex), left and right lateral bending (lb & rb) and left and right

axial rotations (lr & rr). Motion was tracked using the Optotrak motion capture system (NDI, Waterloo, Canada). Following the biomechanical testing of intact specimens, 1 TLIF (Aesculap, Germany) or bilateral expandable PLIF (Medyssey, Elk Grove, IL) cages were inserted and tested. Next, pedicle screw system (PSS) was implanted to stabilize the segments before further testing. TLIF was performed in 6 L2-L3 specimens and PLIF was performed in 6 L4-L5 specimens.

RESULTS: Standalone TLIF procedure increased the motion of the segments in ext (26%), lb (16%), rb (10%), lr(25%) and rr(37%) and decreased in flex(7%), compared to intact motion. Standalone bilateral PLIF cages reduced the motion in flex (36%), ext (70%), lb (64%), rb (58%), lr (22%) and rr (5%). The reduction due to standalone PLIF was significant in all loading modes except axial rotation (Figure 1). Implantation of pedicle screw system reduced the motion significantly in all loading modes in TLIF and PLIF groups.

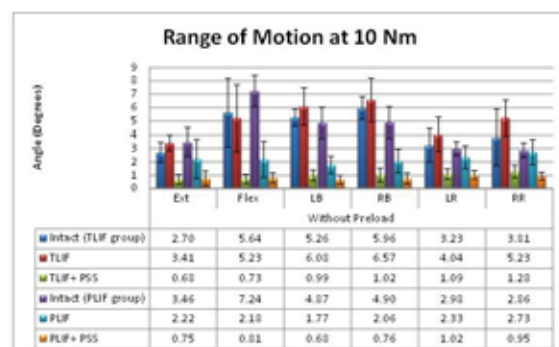


Figure 1: Mean range of motion of TLIF and PLIF groups at 10 Nm loading

DISCUSSION: The expandable cages effectively stabilized the spine in all modes, except axial rotation. Addition of pedicle screw fixation system would further stabilize the spine, especially in rotation. Thus, expandable cages may need additional stabilization, especially in axial rotation to provide favorable environment for spinal fusion.