

# ARTICLE IN REVIEW:

## Higher nonunion rate using cages versus allografts in ACDF

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**TITLE:** Cages in ACDF are Associated with a Higher Nonunion Rate than Allograft. A Stratified Comparative Analysis of 6130 Patients.

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**STUDY DESIGN:** Retrospective database review, 6130 patients.

**SUMMARY:** Anterior cervical discectomy and fusion (ACDF) is a common treatment for cervical degenerative disc disease (CDDD). Use of an interbody spacer provides support and promotes fusion. This retrospective review evaluated the rate of nonunion in 6130 patients who had undergone ACDF surgery using either structural allograft bone (n=4063) or synthetic cages (n=2067). After at least one year follow-up, overall nonunion rates were significantly higher in the cage group (5.32%) compared to the allograft group (1.97%;  $p < 0.01$ ). Increased rates of nonunion were consistently observed in the cage group regardless of confounding factors, such as levels treated, tobacco use, and diabetes. This study demonstrates a significantly greater risk of nonunion with the use of synthetic cages in ACDF procedures compared to structural allografts, supporting the use of structural allografts in cervical fusion procedures.

### Greater nonunion rate with synthetic cages:

Nonunion rates were significantly higher in the cage group (5.32%) than in the structural allograft group (1.97%;  $p < 0.01$ ).

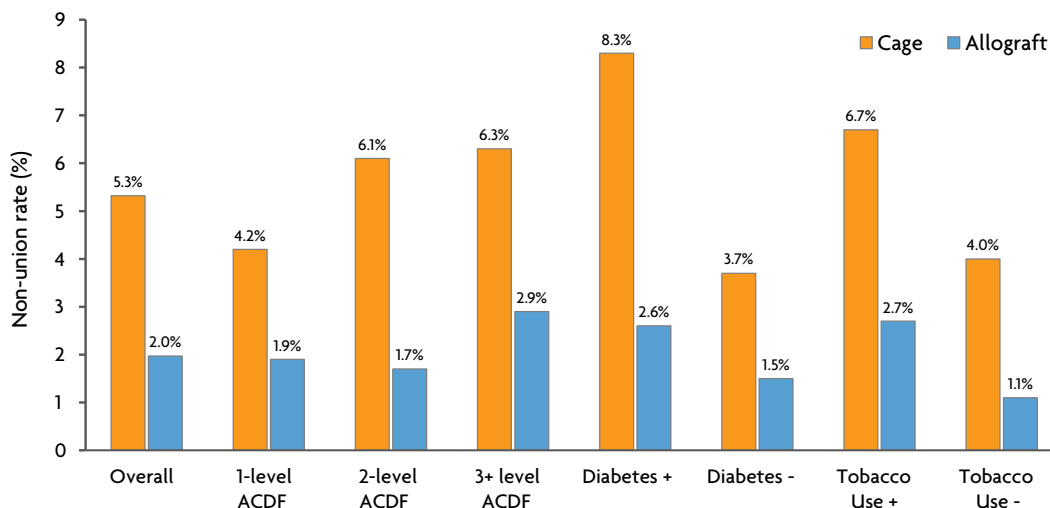
### Allograft outperformed cage regardless of confounding factors:

Cage group showed consistently higher nonunion rate regardless of confounding factors, such as levels treated, tobacco use, and diabetes.

### Structural allografts are an effective choice in ACDF:

The results suggest that allograft may be a superior option over a cage in achieving arthrodesis in the cervical spine.

Structural allografts have a lower rate of nonunion compared to synthetic cages.



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